

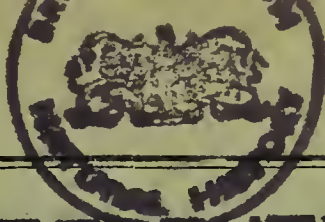
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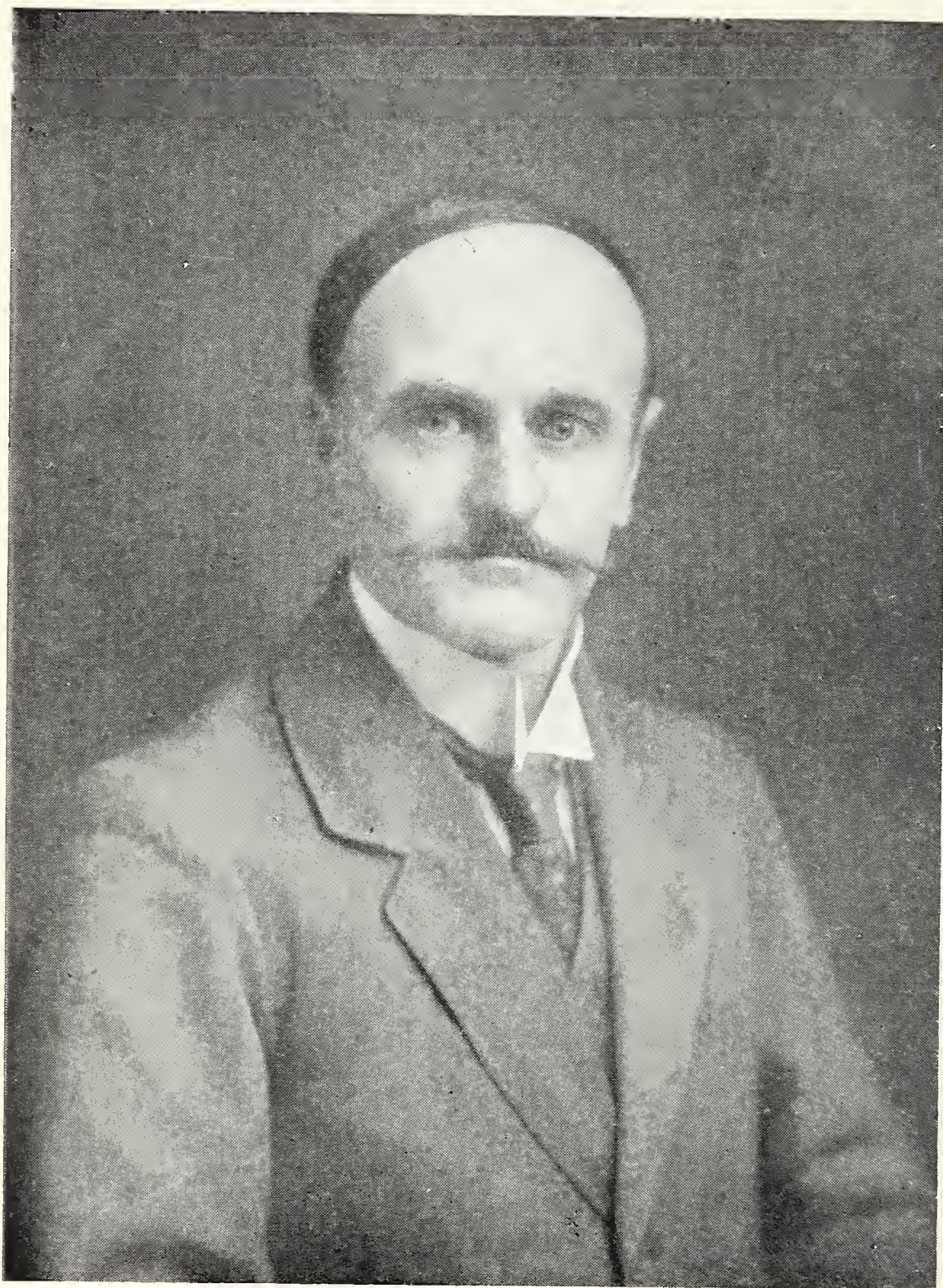
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JOHN E. S. DALLAS.

THE LONDON NATURALIST.

No. 32 for the year 1952

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Supplement: A Hand List of the Plants of the London Area.

Editorial.

YOUR new Editor would like, first of all, to pay tribute to his predecessor, Mr. P. W. E. Currie, Editor of the *London Naturalist* since 1947. It is much to be regretted that other commitments have obliged Mr. Currie to relinquish this office.

Readers will notice a stout 'M' at the base of the spine of this issue. We have decided to denote in this way the inclusion of the full list of members, in the belief that readers may find it useful to distinguish these issues at a glance.

We are pleased to report that a grant of £45 has been received from the Royal Society towards the cost of publication of the part of the Hand-List of the Plants of the London Area dealing with the genus *Rubus*. We should here also like to thank Dr. D. G. Tucker for his generosity in meeting the cost of publication of his paper in the *London Naturalist*, No. 31.

In the *London Naturalist*, No. 27, Mr. R. S. R. Fitter contributed a bibliography of works dealing with mammals, reptiles and amphibia in the London area. In this issue will be found a second paper from Mr. Fitter, an index to our Society's publications—including the *London Bird Report*—since it assumed its present name in 1914. We are very much indebted to him for the labour of compiling this index, which meets a long-felt need and will be of permanent use to members.

President's Address, 2nd December 1952.

By J. H. G. PETERKEN, F.L.S.

Habitats of the London Area.

THE London Natural History Society, many years ago, officially adopted as its territory for study that area comprised within a circle having a radius of twenty miles from St Paul's Cathedral. This covers an area of more than 1200 square miles, the greater part of which is densely built-up. In the remainder of the area there is a considerable variety of different kinds of habitat and this paper is designed, from the botanical aspect, to summarize these habitats and indicate some of the localities within our area where they can be studied. The list of localities given is typical only and is not intended to be exhaustive. The selection includes both natural and artificial habitats and others which are partly natural but have been modified by man's activities. It is proposed to deal firstly with natural habitats but some of the partly natural will have to be coupled with them because it is sometimes difficult to separate them: in an area such as ours it is almost impossible to find a square yard which has not been influenced in some way by man. Afterwards, the wholly artificial habitats will be considered.

Nearly all books dealing with the ecological study of vegetation commence with the woodlands and it is proposed here to follow suit and.

further conforming to general practice, the first on the list is OAK WOODLAND.

Of the woodland in our area OAK is the predominant type and most of it is pedunculate oakwood. This habitat can be studied at Epping and Hainault Forests and on the edge of our area at Brentwood and Warley in Essex; at Broxbourne and Hoddesdon Woods and Hadley Wood in Hertfordshire; Middlesex has oakwood at Ruislip and Stanmore—also at Ken Wood and Bishops Wood where the sessile oak is also to be found mixed with the pedunculate. Sites in Surrey are at Bookham Common and Ashted and in Kent at Keston and Hayes Commons, Orpington and Abbey Woods. Many of these woods conform to a general pattern as defined by Tansley in his 'British Isles and their Vegetation'; that is to say, the Oak is usually predominant and is associated with Ash, Birch, Elm and Hornbeam and with the smaller Maple, Holly and Crabapple amongst others. The most frequent shrubs are Hawthorn, Blackthorn, Elder, Dogwood and Hazel.

There are, however, some marked differences between some of the woods north and south of the Thames. One is the abundance of Hornbeam in the Essex and Hertfordshire localities whereas in the southern parts of our area it is much less frequent and in places quite rare. Another is that in Kent and Surrey the Hazel is abundantly associated with the Oak but in Epping Forest it is definitely scarce. There are other differences (less noticeable without close study) in the associated trees and shrubs of the various oakwoods in the area and some of these differences are reflected in variations in the herb and moss layers. Two of the locally dominant herbs in woods are Dog's Mercury (*Mercurialis perennis*) and Sanicle. The latter is much rarer north of the Thames than in Surrey and Kent where it is dominant in places, whereas in Essex and Hertfordshire *Mercurialis* has little or no competition from Sanicle but in the South is subordinate to or shares dominance with that plant.

The Soft Grass, *Holcus mollis*, which is abundant in Epping Forest is much less frequent in Surrey and Kent whereas the False Brome, *Brachypodium sylvaticum*, abundant in the South is only local north of the Thames. A similar remark applies to *Poa nemoralis*.

Some of the herbs of the field layer common in all the oakwoods of our area are Herb Robert (*Geranium robertianum*), Wood Avens (*Geum urbanum*), Wood Sorrel (*Oxalis acetosella*), the Dog Violet (*Viola riviniana*), Hedge Woundwort (*Stachys sylvatica*), and Common Cowwheat (*Melampyrum pratense*). There are, of course, many more but these will give some idea of the general picture.

Oak forest is what is known to ecologists as the 'climatic climax' in much of the type of soil to be found around London and it is possible to see various stages of the development from scrub to oak woodland in parts of our area. In the grassland verging on to the woodland and in forest clearings fast-growing shrubs and birch trees quickly make headway and give protection to a few acorns and seedling oaks which are otherwise at the mercy of rabbits, mice and grazing animals.

Epping Forest and the Hertfordshire woods, in particular, have a number of such sites.

Dry oakland dominated by the Sessile Oak is not common in our area but can be seen in a small wood in the Chipstead valley in Surrey and also at Farningham, Joydens Wood, Abbey Wood, and Petts Wood in Kent. It is usually associated with much Birch and some heathland. Accompanying plants of the field layer which are often to be found also in damp oakwood are various species of bramble (*Rubus*), Wood Anemone, Ground Ivy, Honeysuckle, and the wild Hyacinth. The latter, more familiarly known as 'Bluebell', is seen at its best in Oxhey Woods where it provides a wonderful blue carpet such as artists delight in portraying. In Epping Forest, however, the plant is found only sparsely and individual plants are mostly short and thin-stalked. The wild hyacinth prefers a light soil whereas the soil of much of Epping Forest is, generally speaking, heavy London Clay, although it is capped in parts with glacial gravel. Holly will often indicate where the gravel is.

Another of our common woodland species, the Primrose, is nowhere really abundant in our area but can be found growing almost as thickly as bluebells within a few miles of our boundary. It is quite rare in Epping Forest but grows moderately well in the nearby Ongar Park Wood.

Other plants of interest to be found in dry oakwood are *Iris foetidissima*, usually in the more calcareous places; Lily of the Valley (*Convallaria majalis*) which is abundant in some Kent stations and also in Ongar Park Wood in Essex; Solomon's Seal (*Polygonatum multiflorum*) in Kent, Butcher's Broom (*Ruscus aculeatus*) and the Great Wood Rush (*Luzula sylvatica*).

BEECHWOOD. There is a considerable amount of beechwood on the chalk in South and South-East England outside our area, especially in the Chilterns, but in our area itself there are few places where the beech has any dominance. Where such woods can best be seen are on the chalk at Downe, Knockholt and Chevening in Kent and on Box Hill, parts of the Mole Valley, and at Reigate Hill in Surrey. In the well-known Monks' Wood in Epping Forest the beech is dominant on glacial gravel and smaller beechwoods on similar soil are at Ken Wood and Pinner in Middlesex.

There is a considerable difference between the ground flora of the beech woods on the chalk and those of (say) Epping Forest. In the latter, the ground flora is confined almost to mosses, some such as *Leucobryum glaucum* and *Plagiothecium undulatum* being confined to the beechwoods. In autumn there is a fine selection of fungi for the mycologist. Those who are brave enough to test the edible qualities of the toadstools will find here plenty of material either to tickle their palates or to make themselves extremely uncomfortable as the case may be. In contrast, the chalk beechwoods are much better endowed with a ground flora especially where the canopy opens out and such plants as Dog's Mercury, Sanicle, Woodruff, and Wood Violet are abundant. A

number of orchids on our London list are only to be found in the chalk beechwoods.

Although the ASH is a very common tree in our area, it is usually found in mixed woodland which is a seral stage on the way to the climatic climax. There is nowhere in our area where ashwoods such as are found in other parts of the country, particularly on limestone, can be studied. In places on the North Downs, ash scrub is found accompanied by other shrubs in lesser degree such as Privet, Spindle, Way-faring Tree, Dogwood and others.

As to PINE, there is, of course, no natural pine in the area, such woods as there are having been planted, although there has been some colonisation from the original planted parents. In places, such as Black Park in Buckinghamshire which is just within our area where the pines are well spaced out, well grown and mixed with occasional oaks and sweet chestnut, there is a reasonably good ground flora. On the other hand, where the pines are growing densely as on some of the Surrey heaths, the deep shade and thick litter of pine needles precludes the growth of smaller plants and other vegetation is confined to the edges of the woods. One frequently sees localities where Pine and Birch are mixed and there is then usually sufficient light to enable other plants to grow. Brambles are very common in such situations.

YEW wood is to be found on Box Hill, Mickleham Downs and Norbury Park near Leatherhead. These trees cast such a deep shade that very little else is able to grow under them, even woodland mosses finding the light insufficient in most places. On the edge of the Yew wood, however, at both Norbury Park and Mickleham is a station for the rare Green Hound's-tongue (*Cynoglossum germanicum*).

On the edge of the Yew and Beech woods on Box Hill there is an abundance of Box (*Buxus sempervirens*), the plant which gives its name to the hill. These boxwoods are authoritatively considered to be native but they are mostly just outside our boundary. There are also native box trees in Norbury Park near Leatherhead.

Nowhere in our area do the boles of any trees support an abundant moss or lichen flora such as is found in Sussex or the New Forest. Generally speaking, the majority of the trees which have any mosses at all have them on the spreading roots and a short way up the bole, and such mosses are usually confined to those species which grow equally well on the ground such as *Mnium hornum* or *Hypnum cupressiforme*. Only in the more distant parts of the area in Kent and Surrey do we find more than an occasional patch of the truly tree-growing species with the exception of *Dicranoweissia cirrata* which is fairly common in most of our woods.

BIRCH woods are abundant with us. They are fast growing trees and one of the first colonisers of cleared woodland. Where the Oak is not very thick or has been thinned out by felling or coppicing Birch will quickly fill up the spaces. What is known as oak-birch-heath association is sometimes thus formed and can be seen on many Surrey and Kent heaths mostly on sand or gravel. Epping Forest and the Hertford-

shire woodlands have many such habitats. They are a seral stage towards the re-assertion by the Oak of its ultimate dominance. The ground flora in birchwood is more abundant than in most other woods as the canopy does not throw a heavy shade. Quite a long list of plants can be compiled as many heath plants find sufficient light for their needs. Several species of fungi appear to favour birchwoods and in Epping Forest, at least, the handsome Fly Agaric (*Amanita muscaria*) often makes a wonderful show in the autumn. Birchwood often makes a good start by growing amongst and obtaining protection from woody shrubs such as wild roses, bramble, Hawthorn and Blackthorn. Such a site is described as MIXED SCRUBLAND and is also a seral stage from heathland to the dominant woodland.

It is difficult, at times, to decide whether to describe a locality as heathland or mixed scrubland and our area contains many examples of various stages of this transition from heathland to scrub. As an example, Pear Tree Plain in Epping Forest some years ago was an open grassy space, rather damp, the dominant grass being *Deschampsia caespitosa* accompanied by several sedges, *Juncus* spp. and a number of common heath plants. Cows were often to be seen grazing there. For some years now the grazing has ceased and as a consequence the scrub is gradually invading the area. In a few years' time it may be almost impossible to use the paths now traversing this part of the Forest. Amongst these woody shrubs birches and oaks are springing up which in time, if left to develop naturally, would become woodland once again.

Similar scrubland is to be found, amongst other places, at Bricket Wood in Hertfordshire, parts of Barnes Common, Putney Heath, Wimbledon Common, Bookham Common and at Limpsfield in Surrey and at Hayes Common and Keston in Kent.

HEATHLAND in our area is usually on fairly open land on poor sandy or gravel soil much of which is of the podsol type and therefore very acid. It is dominated by the common Ling (*Calluna vulgaris*) or by the Bell Heather (*Erica cinerea*) or both. Several parts of Surrey are occupied by this type of habitat from Limpsfield Common in the eastern part of the county to Oxshott and Esher in the west and also on Reigate Heath, Wimbledon Common and Putney Heath. Epping Forest has small patches of heathland scattered about from Chingford to Epping. There is a remnant left at Hampstead Heath. Some localities in Kent are Hayes and Keston Commons, Holwood Park and St. Paul's Cray. The Bilberry (*Vaccinium myrtillus*) is sparsely associated with the heather in several of these places and of course Bracken is becoming more and more dominant. This fern will also invade the woods wherever the light is sufficient for its needs. Efforts are being made to control or eradicate Bracken in various places with varying success. Gorse, both *Ulex europaeus* and *U. minor*, are common associates in this habitat. Of the ground flora, Sheep's Sorrel (*Rumex acetosella*), Tormentil (*Potentilla erecta*) and Heath Bedstraw (*Galium hercynicum*) are usually abundant everywhere. Goldenrod (*Solidago virgaurea*) is frequent in Surrey and Kent but much less common north of the Thames. Lichens especially of *Cladonia* spp. are frequent.

GRASS HEATH is often associated with the last habitat and is to be found where steps have been taken to prevent the spread of the *Calluna* and *Erica* and scrub. Golf courses are typical of this type as are some of our commons which are much used by the public. An excellent example is Limpsfield Common. Here many delightful small plants are able to maintain themselves—both frequent and rare species. Typical are Lesser Stitchwort (*Stellaria graminea*), several species of clover and trefoil, Bird's-foot trefoil (*Lotus corniculatus*), Agrimony and Autumnal Hawkbit (*Leontodon autumnalis*). The dominant grasses on these sandy heaths are usually *Poa annua*, *Festuca ovina* and *Lolium perenne*. On some of the damper heathland Mat-grass (*Nardus stricta*) occurs—it is abundant in Epping Forest and on Wanstead Flats. The purple Moor Grass (*Molinia caerulea*) appears also on some of our damper heaths, amongst others at Oxshott and Esher, Wimbledon and Epping Forest, but it nowhere becomes dominant as on the moors of Northern and Western England. Most of the localities given for heathland apply also to grass heath.

CHALK GRASSLAND within our area is to be found on parts of the North Downs at Caterham, Banstead, Epsom Downs, Farthing Downs and Box Hill in Surrey and around Shoreham in Kent. The dominant grass here is *Zerna erecta* [= *Bromus erectus*] with *Brachypodium pinnatum*, *Festuca ovina* (agg.), *Festuca rubra*, *Koeleria gracilis*, *Briza media* and *Helictotrichon pratense* [= *Avena pratensis*] associated with it. This short grassland on the chalk supports a number of small calcicolous plants and the commoner species of our North Downs are typical of similar chalk land in other parts of the country. Some of the more frequent are Salad Burnet (*Poterium sanguisorba*), Yellow Wort (*Blackstonia perfoliata*), Centaury (*Centaureum capitatum*), Thyme (*Thymus serpyllum*), Wild Basil (*Clinopodium vulgare*), Marjoram (*Origanum vulgare*), Field Scabious (*Knautia arvensis*), Small Scabious (*Scabiosa columbaria*), Carlina Thistle (*Carlina vulgaris*), Stemless Thistle (*Cirsium acaule*), Purgings Flax (*Linum catharticum*), Squinancywort (*Asperula cynanchica*), Eyebright (*Euphrasia* spp.) and Rockrose (*Helianthemum chamaecistus*).

These chalklands are the only habitat in our area for some of the rarer plants. These include a number of orchids, Ground Pine (*Ajuga chamaepitys*), Round-headed Rampion (*Phyteuma tenerum*), Bastard Toadflax (*Thesium humifusum*) and several mosses. Juniper scrub has invaded this grassland on Box Hill and other places in Surrey and at Shoreham in Kent.

The moss flora of the chalk is much richer in species and in the number of plants than elsewhere in our area. Most of the species found North of the Thames are to be found in Kent and Surrey and the chalk supports many calcicolous species which are not found elsewhere in our area. Box Hill is particularly rich but as our boundary cuts through Box Hill, part of the Hill is actually outside the area.

Other grasslands are the water meadows mainly on alluvial soil, and grazing land. These water meadows show important differences in vegetation from each other according to the *Ph* value of the water

flowing through them and also from grazing land which is often on higher and dryer ground. The flora of meadows around the Darent and the Mole is influenced by the fact that these rivers flow through the chalk.

Grazing lands imply mainly grasses and many leys have been sown with species of benefit for feeding animals. The chief species are Rye (*Lolium* spp.), Timothy (*Phleum pratense*), Cock's-foot (*Dactylis glomerata*), the meadow grasses (*Poa pratensis* and *P. trivialis*), Crested Dog's-tail (*Cynosurus cristatus*) and Sweet Vernal Grass (*Anthoxanthum odoratum*) and several species of Fescue. Other less valuable or even harmful grasses sometimes get in, wind or bird sown or as impurities in the seed. Yorkshire Fog (*Holcus lanatus*), Foxtail (*Alopecurus* spp.) and some *Bromus* spp. come under this category. Red and white clover and other leguminous plants are common on grazing land and are palatable to the animals. Meadows which are not well managed will develop a number of common weeds which thrive because they are not eaten by the animals. These include several species of Buttercup, the common Daisy, Thistles, Plantains, and Docks. Or, as Shakespeare puts it—"The even mead . . . Wanting the scythe, all uncorrected, rank, conceives by idleness, and nothing teems but hateful docks, rough thistles, kecksies, burs, losing both beauty and utility."

The river banks themselves are often of more interest than the meadows. Our chief rivers are the Thames and its tributaries—on the North—the Lea and Roding in Essex, Brent and Colne in Middlesex, and on the South—Mole and Wey in Surrey and the Darent in Kent. Alder (*Alnus glutinosa*) and Willows (*Salix* spp.) are the chief trees on the banks and also, of course, on many lakes and ponds.

Of the reed type of grass, *Phalaris arundinacea* is the most abundant in our area. *Glyceria maxima* is plentiful but *Phragmites* although widely scattered is nowhere more than locally frequent. The Orange Balsam (*Impatiens capensis*), which is on Wimbledon Common is common in the Thames and the western tributaries, and its relation the large *Impatiens glandulifera* with dark pink flowers has become firmly established as an introduced plant in parts of the Thames as has the umbellifer *Angelica archangelica*. On the banks especially adjoining alluvial meadows the large water chickweed *Myosoton aquaticum* is common on the Mole and also in the Lea and Colne valleys. An interesting plant along the Mole is the Great Dodder (*Cuscuta europaea*) which parasitises the nettles along the river bank near Church Cobham and Stoke D'Abernon. It is also abundant near Leatherhead. Purple Loosestrife (*Lythrum salicaria*) delights the eye with its bright purple flowers on most of our rivers with the still commoner Hairy Willow Herb or Codlins and Cream (*Epilobium hirsutum*) and the Gypsy Wort (*Lycopus europaeus*).

Of the sedges lining our river banks the commonest are *Carex riparia* and *Carex otrubae* together with an interesting selection of the less common for the specialist. *Carex acutiformis* is plentiful on the Mole and is also to be found in lesser quantity on the northern rivers.

Freshwater MARSHLAND is found at Holwood Park near Keston, Crayford and Darenth in Kent, adjoining Ruislip Reservoir in Middlesex and at Coopersale in Essex. The last mentioned is the only locality in our area for the Marsh Fern (*Thelypteris palustris*). It is accompanied by the Marsh Marigold (*Caltha palustris*) and the lovely Bogbean (*Menyanthes trifoliata*). The last-named plant is also at Holwood Park and Wimbledon Common and in a pond at Bayford in Hertfordshire. Another interesting plant of the freshwater marshes and of river banks is the common Meadow Rue (*Thalictrum flavum*) which is not very common but is recorded from several places. It may sometimes be a remnant of a bygone fen. *Juncus subnodulosus* may be found at Crayford.

Our London area has an abundance of lakes and ponds from the large reservoirs of the Metropolitan Water Board to small drinking ponds for cattle. Whilst various common species are to be found on most of these waters there is a considerable difference in the distribution of some of the less common species. Of the entirely floating plants, the duckweeds are everywhere especially in the smaller waters, *Lemna minor* often completely covering a pond with *L. trisulca* suspended slightly below the surface. *L. gibba* is in ponds and ditches in Essex and Middlesex and *L. polyrrhiza* also, but less common. The tiny *Wolffia arrhiza* may be found in ponds at Burgh Heath in Surrey.

One or two ponds in Epping Forest have the somewhat rare liverwort *Ricciocarpus natans* mixed with the *Lemna* but one cannot always rely on finding it as it comes and goes, a habit it shares with *Azolla fliculoides* which is related to the ferns. This plant appears and disappears in different seasons in the most baffling manner, being sometimes quite absent from a pond where, in the previous year, it had been completely dominant.

Of the pondweeds, *Potamogeton natans* and *P. crispus* are common in most places as is also, to a lesser extent, the Yellow Water Lily (*Nuphar lutea*) with its curious brandy-bottle shaped fruits. Where the White Water Lily (*Nymphaea alba*) grows it has in most cases been planted. In a backwater at Walton-on-Thames is to be found the delightful Fringed Waterlily (*Nymphoides peltatum*) which is related to the Gentians. This plant may also be seen in Hampton Court Park in Longwater. Several Epping Forest ponds are noted for a splendid display of the Water Violet (*Hottonia palustris*) each spring. In other parts of our area it is much less common and in places, especially in the South, quite rare. The plant, by the way, is not a violet but a member of the Primula family. The white water buttercups are represented in many places, altogether by at least ten species but only *Ranunculus peltatus* is very common.

Of the larger and more upright pond plants, the related Water Plantain (*Alisma plantago-aquatica*), Arrowhead (*Sagittaria sagittifolia*) and Flowering Rush (*Butomus umbellatus*) are all to be found without difficulty as are the common Reedmace (*Typha latifolia*) and the Bur-reed (*Sparganium ramosum*). The Lesser Water Plantain (*Baldellia ranunculoides*) is in the Chislehurst ponds in Kent and the Sweet Sedge

(*Acorus calamus*) is well established at Burgh Heath in Surrey. The true Bulrush (*Scirpus lacustris*) adorns some of the larger Epping Forest ponds. Of interest because they are not common are Mare's-tail (*Hippuris vulgaris*) at Fetcham and Gatton Park in Surrey and the more sluggish parts of the River Lea in Hertfordshire, Thrumwort or Starfruit (*Damasonium alisma*) at Headley, Surrey, and Pennyroyal (*Mentha pulegium*) also at Headley. Marsh Cinquefoil is at the Cuckoo Pits ponds in Epping Forest and submerged in the same ponds is Bladderwort (*Utricularia vulgaris*). This plant gets part of its sustenance from minute water animals which it traps in its bladders. The Lesser Skullcap (*Scutellaria minor*) and Marsh Speedwell (*Veronica scutellata*) are recorded amongst other places from Keston, Stanmore and the Wake Valley ponds in Epping Forest.

There are few Bogs in our area. The most important is that on Keston Common in Kent where sixteen species of *Sphagnum* have been recorded from time to time according to the list compiled by F. Rose and eight of these are still to be found there. Farm Bog on Wimbledon Common has 12 spp. of *Sphagnum* and several hepatics including *Pallavicinia lyellii*. Flowering plants here include *Narthecium ossifragum*, *Galium uliginosum*, *Pedicularis sylvatica*, *Lychnis flos-cuculi* and *Eriophorum angustifolium*. Remnants of formerly larger bogs remain at Epping Forest near the Wake Arms and Hampstead Heath. The Sundew (*Drosera rotundifolia*) may still be seen at Wimbledon, Keston and Epping Forest but in the latter only in a very restricted space. At Keston *inter alia* are Sweet Gale (*Myrica Gale*), Deer's Grass (*Scirpus caespitosus*), Bog Asphodel (*Narthecium ossifragum*), Cotton Grass (*Eriophorum angustifolium*) and several bog hepatics.

Our SALTMARSH vegetation is confined to our eastern boundaries around the River Thames; on the Essex side at West Thurrock, Grays and Purfleet and on the Kent side at Stone, Swanscombe and Erith marshes. Typical and common are Sea Beet (*Beta maritima*), Sea Rush (*Juncus maritimus*), Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*), Sea Milkwort (*Glaux maritima*) and Sea Spurrey (*Spergularia salina*), but Sea Lavender and Thrift are absent although they may be found further down the river outside our area. Other interesting plants in this habitat are Sea Hard Grass (*Parapholis strigosus* [= *Lepturus*], five species of Sea Poa (*Puccinellia* spp.), Parsley Water-Dropwort (*Oenanthe lachenalii*), the Small Hare's Ear (*Bupleurum tenuissimum*) and Least Lettuce (*Lactuca saligna*).

The most widespread of the more artificial habitats are the arable fields and their adjoining hedgerows and ditches. They are found in every part of our area outside the inner built-up region. The weeds in fields sown with cereals show certain differences from those growing root crops mainly owing to the nature of the crop. Most of the weeds of arable land are annuals as the constant ploughing prevents perennials from obtaining a hold. Some of these annuals are introduced plants which have come in as impurities in the crop seed. Owing to improved methods of cleaning and sorting commercial seed nowadays, some of these plants are tending to become rare. One of the most beautiful of

these is the Corn Cockle (*Agrostemma githago*) which however can usually be seen in cornfields near Colney Heath and Hatfield in Hertfordshire. The rare Mousetail (*Myosurus minimus*) has been recorded from Chertsey, Claygate, Redhill, Denham and a few other places. Common plants of this habitat are Poppies (*Papaver* spp.), Scarlet Pimpernel (*Anagallis arvensis*), Field Speedwell (*Veronica agrestis*) and Creeping Thistle (*Cirsium arvense*).

The HEDGES which are kept trimmed by all good farmers are composed largely of Hawthorn and Blackthorn interspersed with Oak, Hazel, Holly, Dogwood and wild roses amongst others. The composition of the hedge varies from place to place. These hedges afford protection to a number of plants which appear to prefer hedgerows to any other habitat although most of them may sometimes be found away from the hedgerows. They include several umbellifers, the most abundant being Cow Parsley (*Anthriscus sylvestris*), Rough Chervil (*Chaerophyllum temulum*), and Hogweed (*Heracleum sphondylium*). Others include Nipplewort (*Lapsana communis*), Greater Stitchwort (*Stellaria holostea*), Cleavers (*Galium aparine*), Jack-by-the-Hedge (*Alliaria petiolata*), White Bryony (*Bryonia dioica*), Black Bryony (*Tamus communis*), Larger Bindweed (*Calystegia sepium*), Hop (*Humulus lupulus*) and in the more calcareous districts Traveller's Joy (*Clematis vitalba*). It is to be noted that several of these are climbing plants. They often have to compete with climbing species of Rose and Bramble. The ground at the bottom of the hedge, especially above a ditch, is a favourite spot for the Wild Arum (*Arum maculatum*), a plant which probably has more nicknames and local names than any other in the British list.

Many grass verges between the hedge and the field or the roadside are dominated by the grass False Oat (*Arrhenatherum elatius*), the ubiquitous Stinging-nettle (*Urtica dioica*) or Dead-Nettles (*Lamium* spp.).

Other artificial habitats are chalk, gravel and sand pits. Where these cease to be excavated there quickly springs up an interesting flora which of course differs according to the type of soil. Railway cuttings may be linked with these pits since the habitat has in each case been produced by excavation. The chalk pits and cuttings in Kent especially at Greenhithe and the Darent Valley have an abundance of Red Valerian (*Kentranthus ruber*) in various shades of red, pink and white. Many of the plants of the chalk downs are to be found in these pits and cuttings. At Swanscombe there is a chalk pit where excavation has cut the floor of the pit almost down to the water-table level and conditions approaching to fen are developing. Marsh Helleborine (*Epipactis palustris*) and other marsh orchids are to be found here. At Grays, Essex, a number of uncommon species are thriving in a large disused chalk-pit. These include the Large Wintergreen (*Pyrola rotundifolia*), Wild Clary (*Salvia horminoides*), the introduced crucifer *Bunias orientalis* (which does not appear to have a common English name) and some flourishing bushes of *Pyracantha coccinea* which are escapes from cultivation.

WALLS vary according to the brick or stone of which they are made and this probably has some influence on the plants growing on them. The small fern Wall-rue (*Asplenium ruta-muraria*) is frequent mainly in Surrey and Kent, and occasionally Black Spleenwort (*A. adiantum-nigrum*) and rarely Maidenhair Spleenwort (*A. trichomanes*) and the Rusty-back Fern (*Ceterach officinarum*) are to be found. Flowering plants on walls are Annual Pearlwort (*Sagina apetala*), Ivy-leaved Toad-flax (*Cymbalaria muralis*), an introduced plant, and in places Pellitory of the Wall (*Parietaria diffusa*) which has made great headway on the City bombed sites. Where the wall is very old and humus has collected, some of the larger plants appear. The foot of a wall is a favourite habitat for the Wall Barley (*Hordeum murinum*). The chief inhabitants of our walls however are mosses and lichens. *Tortula muralis* and *Bryum argenteum* are found almost everywhere even in the heart of London. If not crowded out by larger plants, the pleurocarpus mosses *Brachythecium rutabulum* and *Eurhynchium praelongum* will thrive if the base of the wall is damp. In the more outlying parts of our area especially in Kent and Surrey the bryologist will find on the walls an interesting selection of plants to study.

Waste lands many of which have been used by local authorities and contractors for dumping waste material are excellent sites for seeking aliens and casuals. There are many of these along the north bank of the Thames notably at Dagenham, Barking and Rainham. In some of these places it is necessary to obtain permission of the land-owner to explore the ground.

Finally we come to the most recent of man-made habitats—the bombed sites. Many interesting plants have occurred here, a list of which has appeared in the *London Naturalist* under the City Bombed Sites Survey Reports.

The Society undertook an ecological survey at Limpsfield Common for several years before the war and during and since the war for several years past has undertaken similar work on Bookham Common. Much interesting and useful information regarding habitats may be found in the reports of these surveys published each year in the *London Naturalist* and for this reason little reference has been made in this paper to these two localities.

I should like to express my thanks to Messrs. C. P. Castell and Francis Rose for much useful information regarding localities.

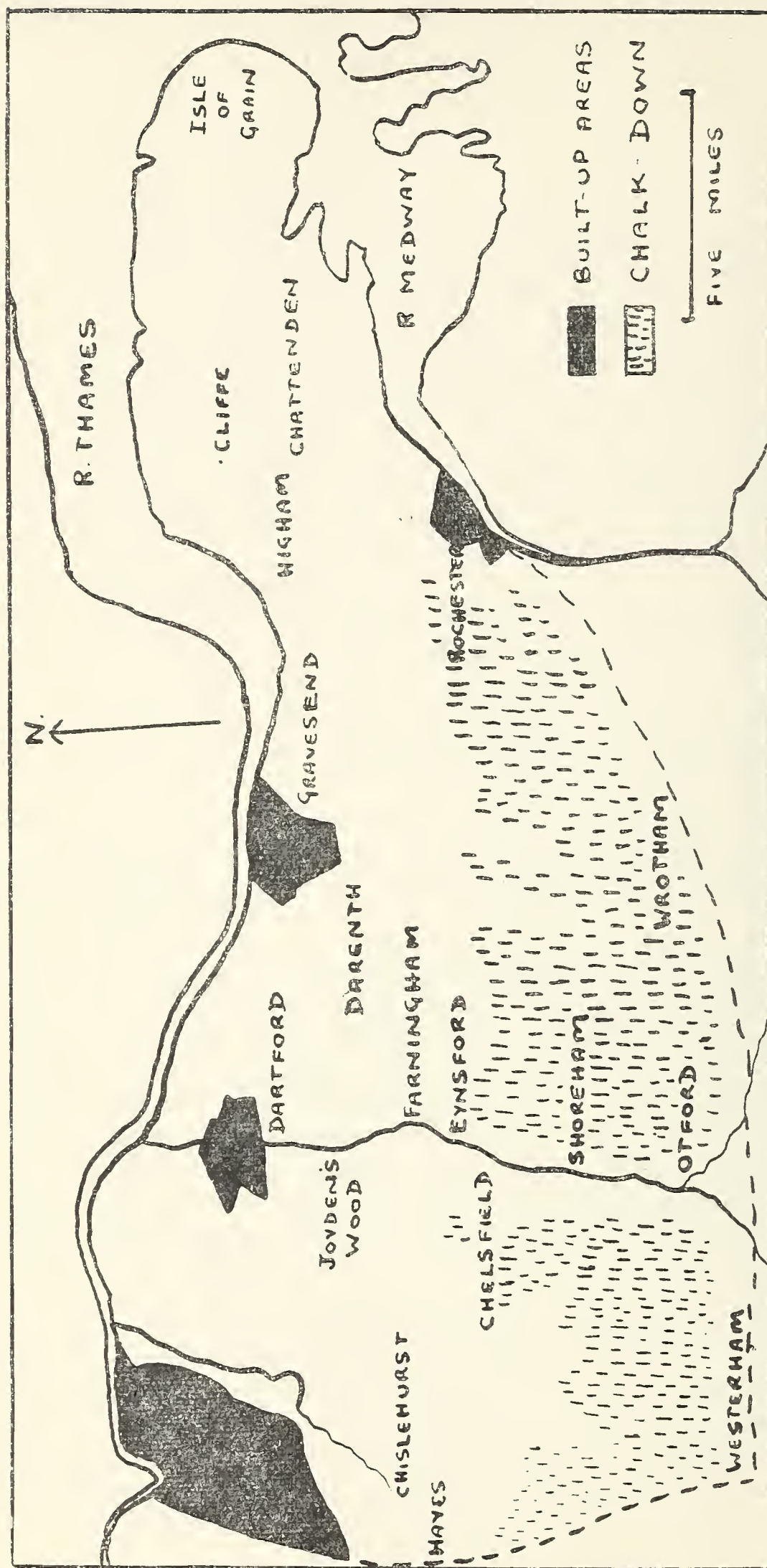
Ecology and Distribution of the Satyridae in West Kent.

By D. F. OWEN.

INTRODUCTION.

THIS paper is the result of a study of the habitat distribution of butterflies in the family Satyridae, with special reference to the ecological requirements and relative abundance of each species. The area referred to as West Kent throughout this paper includes all the country within a boundary extending along the Surrey border south to Westerham, thence along the foot of the North Downs to the River Medway at Rochester, including the whole of the Hoo Peninsula (Map 1). About one half of West Kent comes within the boundaries of the London Natural History Society area, and whenever possible examples demonstrating points of general ecological interest concerning the Satyridae have been selected from within its limits. Eight species of Satyridae occur, the Speckled Wood *Pararge aegeria* L., the Wall Brown *Pararge megera* L., the Marbled White *Melanargia galathea* L., the Grayling *Eumenis semele* L., the Hedge Brown *Maniola tithonus* L., the Meadow Brown *Maniola jurtina* L., the Small Heath *Coenonympha pamphilus* L., and the Ringlet *Aphantopus hyperanthus* L.

The area is of special interest in view of the wide variety of habitats contained within its limits. The chalk downs, with their characteristic flora, cover a large area of countryside to the south. The downs are broken by the Darent valley between Farningham and Otford. Woodland is well represented; on the chalk this is predominantly beech, elsewhere oak is common. Mixed deciduous woodland, such as at Darent and Chattenden, has been much reduced by felling during recent years. Small copses of oak, ash, elm and beech are extremely numerous; these are probably all that survive of large tracts of woodland which at one time covered West Kent. Heathland is scarce and where it occurs it is almost invariably in small patches. The best examples of birch heath country are at Dartford and Hayes; smaller areas exist elsewhere. The marshes bordering the Thames are being gradually reduced by the spread of industrial development. Between Abbey Wood and Gravesend only small isolated marshes remain, but in many instances the fauna seems comparatively unchanged. From Cliffe to All Hallows the well-drained marshes, with numerous fleets and pools, are almost unspoilt. On the Isle of Grain conditions are rather different owing to the commencement of the new oil refinery. Very broadly, it can be said that the remainder of West Kent is under cultivation or is used for grazing. Orchards and hop-fields are common, but of more importance to the Satyridae are the rough pasture and the temporary lucerne and clover fields. Throughout the cultivated areas butterflies are surviving well along roadsides, railway banks and hedges. These provide a continuous link to the more favourable habitats of woodland, heath, marsh and rough downland fields.



Map 1.

The study area, showing principal localities, chalk down and built-up areas.

It is difficult to speculate on the future of butterflies in West Kent. The spread of towns and villages, the more intense cultivation and the destruction of agricultural pests by chemical means, will doubtless have an adverse effect on animal populations. It is hoped that the present paper will stimulate others to record any changes in the habitats and distribution of the Satyridae which may take place as a result of environmental changes.

THE ECOLOGY OF THE SATYRIDAE—GENERAL.

Gause (1934) first developed the thesis that two species of animals with the same ecology cannot persist in the same area, and later authors have demonstrated that interspecific competition results in ecological isolation. Crombie (1947) has summarized admirably the concept of interspecific competition, which he defines as competition between organisms with similar needs and habits when the relation of their population to environmental conditions reaches a certain value. This in effect means that although competition is always potentially present it need not always operate, since closely related species in a given area will tend to differ in ecology and not compete. This has been demonstrated especially in birds, but very few published data are available for the lepidoptera, since here competition is more likely to occur in the immature stages and thus be difficult to detect.

Eight of the eleven species of Satyridae occurring in Britain are found in West Kent, the remaining three, *Coenonympha tullia*, *Erebia aethiops* and *E. epiphron* being confined to the northern part of the country, the latter being further restricted by a mountainous habitat. In Maps 2-7 the present distribution in West Kent of the eight species under review is indicated; these distributions are important in connection with habitat selection. Certain species, notably *Pararge aegeria*, *P. megera* and *Melanargia galathea*, have undergone range variations in the area, the former two being part of a general trend, the latter probably local. These changes are considered in greater detail under the respective species later in this paper.

Lack and Venables (1939), in a study of the habitat distribution of woodland birds, analysed records from various types of woodland habitat and were able to tabulate typical ecological niches occupied by each species. With the lepidoptera the problem is more complex, since detailed accounts of the ecology of the larval stages in the wild state are lacking, and it is only possible to place the butterflies themselves in certain niches, provisionally. Table 1 is based entirely on personal observations and shows the typical habitats occupied by the Satyridae in West Kent.

It should be stressed that these categories are only average. As indicated later in the more detailed discussions for each species, there is often considerable overlap and even seasonal variation in choice of habitat. Here it is relevant to add that elsewhere in Kent and southern England *M. galathea* is found abundantly on chalk down, though it is now apparently absent from that habitat in West Kent, primarily as a result of local range contraction. Further, *P. aegeria* is found in open

country in the west of England and may be extending its habitats in the east, coincidently with an expansion of range.

TABLE 1.
Typical Habitats of the Satyridae in West Kent.

Species.	Heath and Common.	Chalk down.	Salt Marsh.	Rough fields and Hay.	Deciduous woodland.	Felled and open deciduous woodland.
<i>P. aegeria</i>	—	—	—	—	×	—
<i>P. megera</i>	×	×	×	—	—	—
<i>M. galathea</i>	—	—	—	×	—	—
<i>E. semele</i>	×	×	—	—	—	×
<i>M. tithonus</i>	×	—	—	×	×	—
<i>M. jurtina</i>	—	×	×	×	×	×
<i>C. pamphilus</i>	×	×	×	×	—	—
<i>A. hyperanthus</i>	—	×	—	×	×	×

It is now possible to fit the adult insects of each species into a micro-habitat within the main habitat, but since these observations are based entirely on average results considerable overlap will occur. To complete Table 2 it would be necessary to include details of the ecological requirements of the larvae of each species, since competition might be more important at this stage than in the adult butterflies. Such information is at present unobtainable, as our present knowledge merely indicates that all the larvae feed on grass.

TABLE 2.
The Micro-habitats of the Satyridae in West Kent.

Species	On or near ground.	Tall grass.	Bracken or bramble.	Woodland secondary cover.	Tree canopy.	Flower visitor.
<i>P. aegeria</i>	—	—	×	×	—	—
<i>P. megera</i>	×	—	—	—	—	×
<i>M. galathea</i>	—	×	—	—	—	×
<i>E. semele</i>	×	—	—	—	—	—
<i>M. tithonus</i>	—	×	×	—	—	×
<i>M. jurtina</i>	—	×	×	—	—	×
<i>C. pamphilus</i>	×	×	—	—	—	×
<i>A. hyperanthus</i>	—	×	×	×	—	×

The categories in Table 2 require definition, since each is subject to much local variation. “On or near ground” consists of short grass or other plants up to about six inches in height, together with bare open ground. “Tall grass” is vegetation (grass and associated plants) from six inches upwards, such as is found typically in an English meadow in the summer. “Bracken and bramble” are habitats on the woodland floor, at the edge of woodland and overgrown hedges in open country. Here many other plant species may be present in quantity. “Woodland secondary cover” consists of sapling or coppiced trees (i.e. hazel, birch, etc.) growing in a deciduous woodland between the ground vegetation and the canopy. Finally the “tree canopy” is the upper foliage of larger trees in a typical deciduous woodland.

All except two species, *P. aegeria* and *E. semele*, regularly visit flowers, a point which is probably important in determination of the micro-habitat. Examination of Table 2 will show that none of the Satyridae frequent the tree canopy, though some woodland butterflies, notably *Apatura iris* and *Thecla quercus* are largely confined to it. Further it is probably vital that grasses be abundant either in or near the micro-habitat, for these provide larval food.

Before giving a survey of the habitat distribution of the Satyridae in West Kent it is necessary to consider the seasonal abundance of

TABLE 3.
Weekly appearance of the Satyridae in West Kent, based on averages for 1946-1950.

[illegible]

imagines. Details of hibernation periods, growth of larvae, pupation periods, etc., will be found in standard text books on British butterflies, of which that of Frohawk (n.d.) is outstanding. Table 3 shows times of appearance in West Kent based on weekly averages from personal observations.

P. aegeria has at least two, and usually three, broods in a year and is on the wing continuously from the third week of April until late October. Text Fig. 1 shows the seasonal abundance of this species in one small area in 1952, which might be typical. *P. megera* is double brooded, and often a partial third brood occurs in September and October (Table 6). *M. tithonus*, *M. galathea*, *E. semele* and *A. hyperanthus* are single brooded, and although actual emergence may continue late into the season a second brood is never produced. With *M. jurtina* the position is not clear, for while a partial second brood seems probable in some years, delayed emergence might well account for fresh specimens (largely females) seen in September and October. *C. pamphilus* is certainly double brooded and a partial third brood occurs in some years. Summarizing, the three species which are normally double brooded in favourable years produce a partial or complete third generation, and the remaining species, with the possible exception of *M. jurtina*, are always single brooded. As is to be expected, shortened larval and pupal periods needed for producing a normal second generation will tend to persist if conditions are favourable after this brood.

All the Satyridae feed on grasses of various species, and the known records are listed by Allan (1949). There is not, as yet, any indication that in the same habitat two closely related species feed on different grasses, though this may occur in regions outside Britain where more butterfly species are present. Inter-specific competition would be readily overcome by a change of food-plant by one of two closely related species, resulting in ecological isolation for both species.

PARARGE AEGERIA (SPECKLED WOOD).

The history of this species in West Kent is remarkable, for within the past century it has been successively common, extinct and common again. Its history and status in Kent as a whole have been published elsewhere (Chalmers-Hunt and Owen, 1952) and in order to appreciate the significance of the ecological aspects of the butterfly's present distribution it is necessary to summarise briefly this range variation. The following details have been adopted from the paper already published (*loc. cit.*), in which full references are given. About the middle of the last century the butterfly began to decrease in West Kent, and it continued to do so until 1908, when it became extinct in most localities. It should be added that the disappearance of *aegeria* from Kent at this time could be correlated with a general contraction of range in this country, particularly in the east and north, where it became isolated in the West of Scotland (Downes 1948). It had always been reported as more numerous in the Chattenden area than elsewhere, and it is therefore not surprising that the last Kentish record, in 1913, came

from that area. The contraction was, however, only temporary, for about 1920 it began to increase in some localities, this being followed by a steady movement east and to some extent north. There are indications that so far the northward movement has not been as rapid as the eastward one. In Kent the first record of reappearance came in 1942 in the east of the county, and was followed by further records here until 1945, when the first for West Kent was observed. Since these records are of some importance they are tabulated in full.

TABLE 4.

The Recolonization of Kent by *P. aegeria* (data from Chalmers-Hunt & Owen 1952).

Year of First Record.	Locality.	Whether colonies established.
A. EAST KENT.		
1942	Littlebourne.	Yes.
1943	Sandwich.	Yes.
1945	Folkestone.	No, one only.
1945	Appledore.	No, one only.
1945	Dumpton Gap.	No, one only.
1946	Bridge.	(?) several seen.
1947	Lympne.	Flourishing, probably established before 1947.
1947	Dunkirk.	Yes.
1947	Larkey Valley Wood.	Yes.
B. WEST KENT.		
1945	Horton Kirby.	No, one only.
1946	Bromley.	Yes.
1946	Otford.	Yes.
1946	Farnborough.	Yes.
1947	Sevenoaks.	No, one only.
1947	Holwood Park.	Yes.
1947	Shoreham.	Yes.
1947	Joyden's Wood.	Yes.
1947	Hayes.	Yes.
1947	Biggin Hill.	Yes.

That the first reports of reappearance should come from the east of the county is surprising. Two possible explanations exist; first that the original infiltration was along the south coast from East Sussex and in such small numbers that colonies became established in a few localities only. Alternatively immigrants may have arrived from the Continent and colonized areas near the sea; but this is unlikely since *aegeria* is not known as a migratory species. Whatever the method of colonization the first attempt was only partially successful, since a number of colonies in the east have since disappeared. The second attempt, commencing in 1945, was probably on a broad front from Surrey and Sussex into West Kent and was highly successful. The dates of first records together with present distribution are shown on Map 2.

Map 2 shows that *aegeria* is now widespread in West Kent. It is also common in most localities, which shows admirably how quickly a species, under favourable conditions, can adapt itself to a new area. To become established in a new locality it is necessary for a butterfly to be in sufficient numbers to withstand normal environmental and seasonal changes to which the particular locality is subjected. First attempts at colonization are often unsuccessful, especially if numbers are small, as in the original East Kent infiltration. Range variation of *aegeria* and other butterflies, notably *Limenitis camilla*, *Polygonia c-album*, *Nymphalis io* and *Leptidea sinapis*, during the past century has not been directly correlated with any one factor. At present it is only possible to say that such phenomena are due to a series of biotic conditions, possibly largely climatic, which in some way upset the biological balance of the species, with range variation as an ultimate effect. Originally *Nymphalis polychloros* had been placed in the above group, but after detailed study of its recent history in Kent this hypothesis has been abandoned in favour of irregular immigration from the Continent (Chalmers-Hunt and Owen 1953).

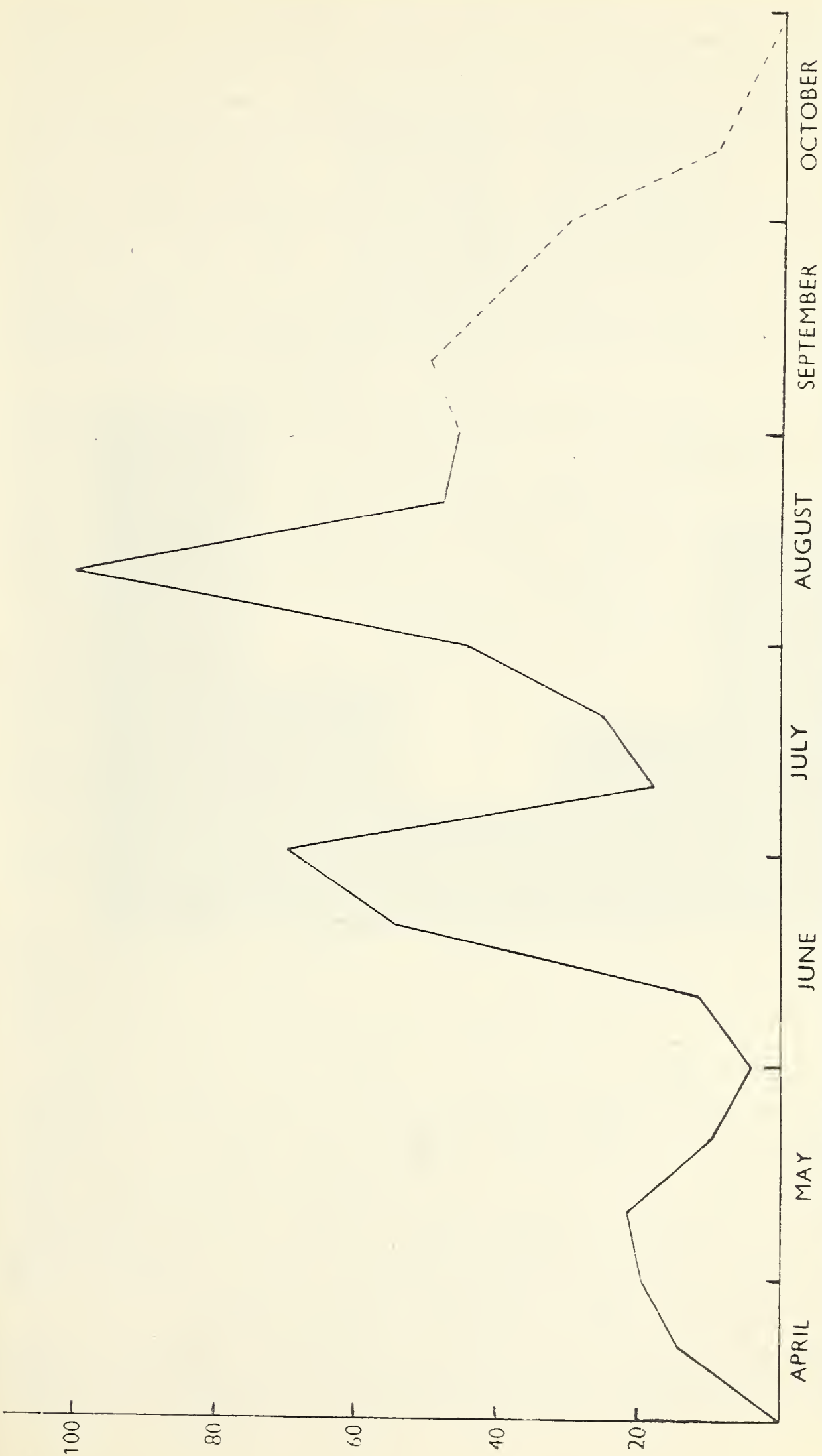
During the process of range extension it is clearly important that certain individuals will have to travel considerable distances in order to colonize new areas. In doing this they overcome such ecological barriers as fields, towns, etc., and fly in fixed directions until a new locality suitable for breeding is reached. Recently a number of observers have recorded this species in unusual situations. It is probable that a considerable proportion of these were actually butterflies flying to new areas. Such movements are usually detected in the autumn. This is to be expected, for as shown later the second and third generations contain more individuals than the first.

The expansion of range of *aegeria* and certain other species seems to be correlated with an extension of habitat. The true habitat of *aegeria* is usually stated to be woodland. Recently, however, there have been many references to different types of habitat, and some of these published and unpublished accounts have already been summarized (Chalmers-Hunt and Owen 1952). In West Kent the first localities colonized were typical, but later an influx into fields, gardens and downland was noted.

THE HABITATS OF PARARGE AGERIA.

Reference has already been made to the variable habitat of *P. aegeria* in southern England, and as this suggested a useful line of inquiry, I carried out some observations of imagines of this species in a wood in Berkshire, with special reference to the ecological requirements, and seasonal variations in habitat and numbers. Some of the results of this study seem to have a bearing on the question of habitat selection of the species in West Kent.

In 1952 every individual butterfly seen on fine days was noted and precise details of habitat recorded, as well as details of courtship flight and relations with other insects. As unfavourable climatic conditions



Text fig. 1. Seasonal abundance of *Pararge aegeria* in 1952, showing peaks of Gen. 1, Parts 1 and 2, Gen. 2 and Gen. 3. Broken line after August represents estimated abundance after records were discontinued.

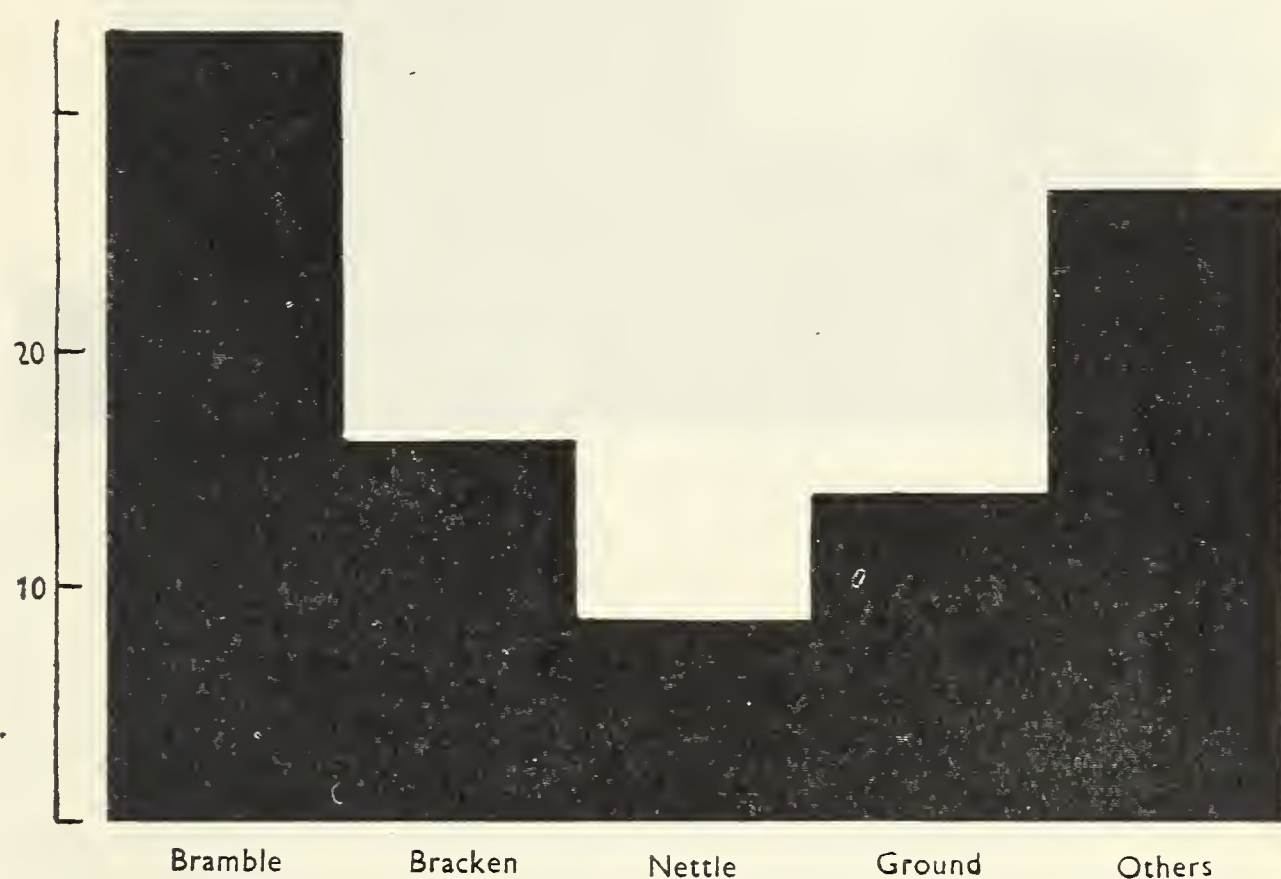
prevailed after mid-August, most of the analyses given here are based on observations made from the third week of April until the second week of August. First of all it is necessary to consider the seasonal abundance of *aegeria* in the study area. Table 3 shows that butterflies are on the wing throughout the spring and summer and on into the autumn; this represents three distinct broods. The first brood is divided into two parts, called Gen. 1 Parts 1 and 2. Part 1 consists of early butterflies which have passed the winter as pupae and Part 2 are later butterflies which have hibernated as larvae. Text Fig. 1 shows that Part 2 contains far more individuals than Part 1, suggesting that hibernation as larvae is more successful than hibernation as pupae. But this would also depend on the proportion of potential hibernators of each type before the onset of winter. Whether this is variable (as it might well be) is a subject for future study. There is a slight overlap in the two parts of the first brood, but it was always possible to distinguish the newly emerged Part 2, since they differ in colour and marking from the early butterflies, in that they resemble the main second brood. The first second brood butterflies appeared during the second week of July, when individuals of Gen. 1 Part 2 were still flying. Text Fig. 1 shows that numbers increased rapidly, reaching a peak in early August, afterwards falling, due partly to adverse weather conditions consisting of a long drought followed by torrential rain.

Richards (1940) has pointed out that in *Pieris rapae*, a butterfly producing on average 300-400 ova per female, a 99% mortality is necessary for the species to remain numerically constant, and that a decrease of 1% of the death rate of a brood means that the species will start the next generation with a population three times as dense. This might well apply to the later broods of *aegeria*, which produce many more individuals than earlier ones. The immature stages of the first brood are subject to the rigours of winter, resulting in a higher mortality and fewer spring butterflies.

P. aegeria imagines were found to occupy an ecological niche in the woodland butterfly community from which they rarely wandered and into which other related species rarely flew. Further it was found that certain species of plants were habitually used by the butterflies as resting places, and these would have to be present in the main habitat. The micro-habitat of *aegeria* is typically a bramble, bracken or nettle clump surrounded and shaded on two or more sides by secondary growth or low tree canopy, often forming a patch isolated from adjacent micro-habitats. Such an area of a few square yards may be situated 1-5 feet above ground level and would usually be occupied by a single butterfly. There is, of course, much variation in this micro-habitat, but almost all records of butterflies seen at rest (i.e., all individuals other than those flying) were found in this type of situation, though the resting plants might be made up of different species.

Table 2 shows that *aegeria* does not normally visit flowers. In 1952 I saw one butterfly feeding from the flowers of *Solidago* in Darent Wood. A few visit over-ripe blackberries in the autumn.

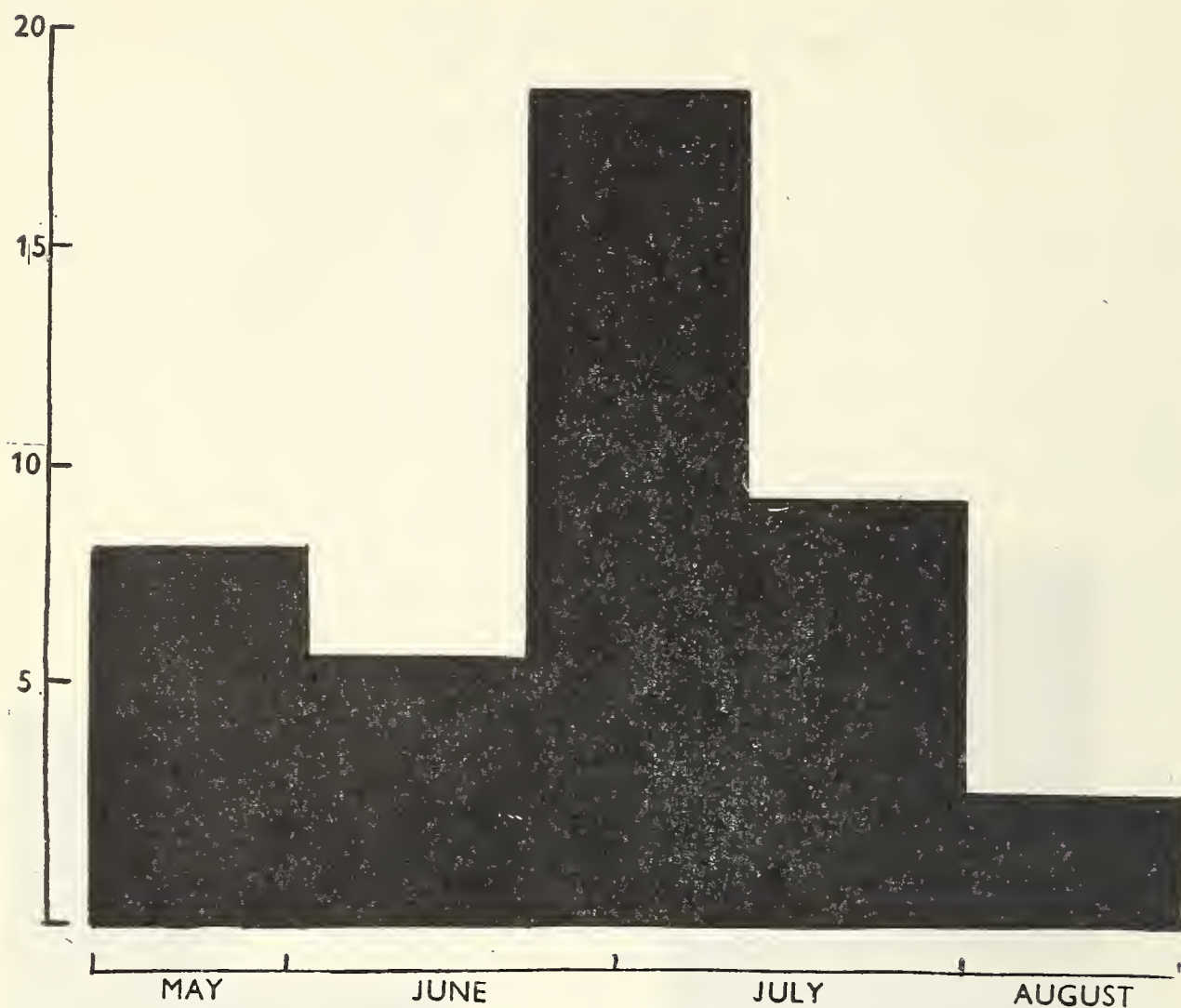
It was found that certain plants were selected as resting places, and others equally common and suitably situated were disregarded. Quantitative data on the distribution of plants and shrubs in the study area is not presented here. but, generally speaking, bramble, bracken, elder, hazel and nettle in that order were most numerous. These were not used proportionately as casual observation might suggest. Text Fig. 2 shows the percentage frequency of certain plants used in selection of micro-habitat by butterflies in the study area. Bramble is most important, followed by bracken and nettle; the remainder consisted of thirty-four plant species or genera (where species not distinguished) most of which were of single records, the maximum being eight on ash. Butterflies noted on the ground in or near a typical micro-habitat are also included in Text Fig. 2.



Text fig. 2. The percentage frequency of plants used in selection of the micro-habitat of *Pararge aegeria*.

Plant species present might therefore play an important part in habitat selection in *aegeria*, which could conceivably lead to population limitations and even range restriction, for in areas where the required vegetation is lacking the butterflies would either occupy a different micro-habitat type or be absent.

Seasonal variation of some significance in plant selection was only apparent in one of the three major plant species, nettle. This is shown in Text Fig. 3 and could be correlated directly with the rapid growth of this plant in the early summer, when it tends to eliminate other plant species within the micro-habitat and so become more important to the butterflies. In 1952 rapid dying of nettle in late July and early August due to prolonged drought resulted in a decrease of its importance in the micro-habitat.

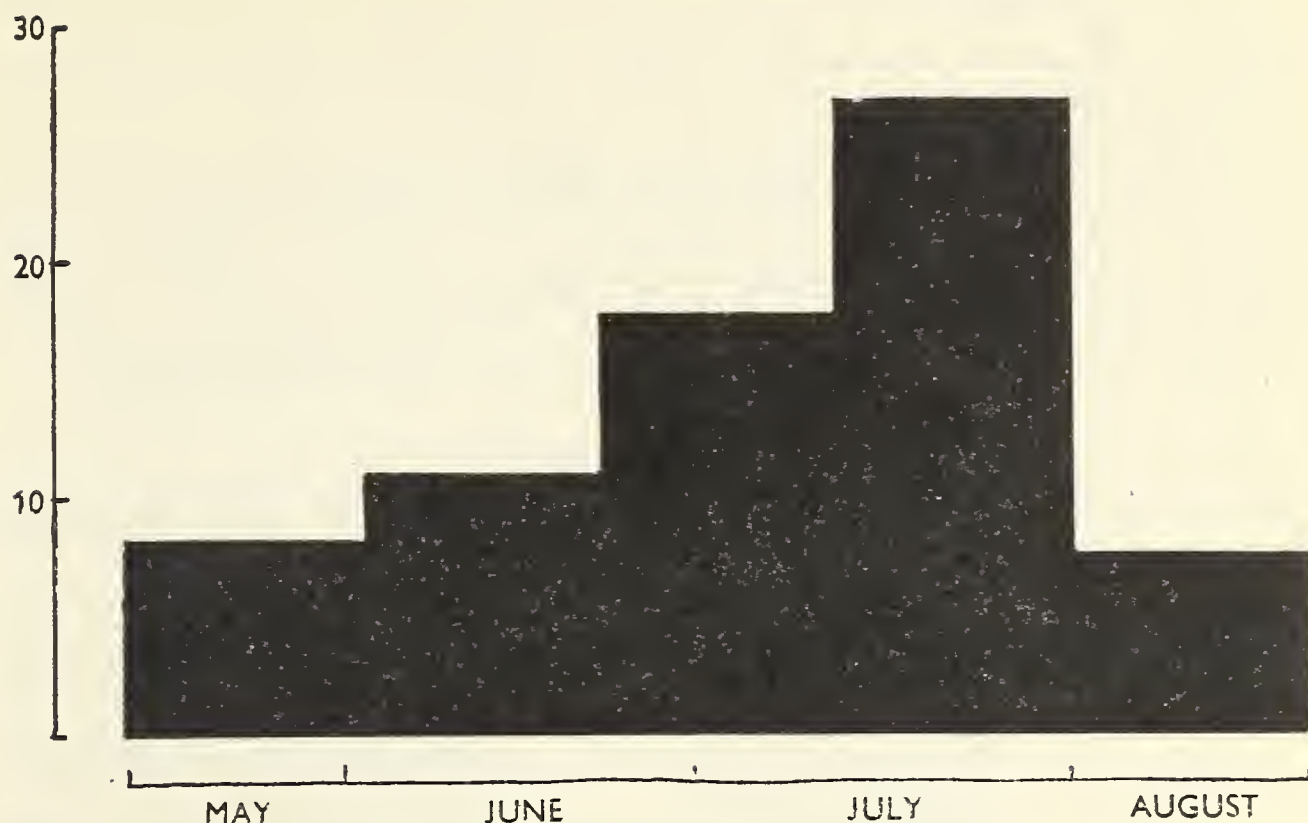


Text fig. 3. Seasonal variation in the selection of nettle in the micro-habitat of *Pararge aegeria*.

Another presumed effect of drought was the tendency to use the bare dry ground more frequently as a resting place in a manner reminiscent of *P. megera*. Most observations indicate that ground resting is a temporary adaptation to dry conditions, and that the area occupied is otherwise typical as the micro-habitat of the species. There was, however, a tendency for these ground-resting butterflies to move further away from the woodland and a few individuals were seen in unusual (for the study area) situations. Text Fig. 4 shows the percentage of butterflies seen on the ground between May and August. A peak is reached in late July, which drops rapidly in August when the rains commence. The peak in July may be compared with the decrease of nettle-resting butterflies during the same period.

It seems apparent that *aegeria* has become adapted to a specialised micro-habitat in which it is largely isolated from other related species. It may be postulated that this is an ecological adaptation brought about in the first place by inter-specific competition.

Before entering into a more general discussion on the habitat of *aegeria*, it is necessary to consider some observations which seem to indicate that there is competition for resting places within the micro-habitat. In 1952 resting butterflies were observed to take flight and chase other species which chanced to cross the micro-habitat or "terri-



Text fig. 4. Seasonal variation in selection of the ground as a resting place by *Pararge aegeria* imagines.

tory." This chasing was prolonged in some cases, but usually the attacker returned to its original resting place once the intruder had been driven well away. Such actions were quite distinct from the upward courtship flights with individuals (of either sex) of the same species, although once a *M. jurtina* became engaged in such a flight, a clear case of mistaken identity. Observations of butterflies driven from the micro-habitat are shown in Table 5, and further casual observations suggest that outside its own area *aegeria* may be driven from the micro-habitat of another species whose territory it may chance to cross. It is difficult to appreciate the full significance of this behaviour, since it is unlikely that another species would interfere even if it did come to rest within the micro-habitat, and as *aegeria* very exceptionally visits flowers competition in this direction may be ruled out.

Temple (1949), commenting on the paper by Downes (1948), is of the opinion that the courtship flight is a means of range expansion in certain butterflies, and includes examples from species which have recently expanded their range in this country, including *aegeria*. It is true that this species has a courtship flight, which is not present in most Satyridae, but this hypothesis does not fit in with the recent extension of range of *P. megera*, which does not have a courtship flight. Courtship flights consisting of two (sometimes three) butterflies were commonly seen in 1952, but my own observations suggest that most individuals eventually returned to the original micro-habitat and did not wander far. Courtship flights also existed when these same species were on the decrease. This does not entirely rule out the hypothesis, since the displaced butterflies might be unable to affect colonization of new areas which might have been temporarily unsuitable. However,

I believe it unlikely that rapid colonization of new areas, such as the return to Kent of *aegeria*, is brought about by courtship flights as suggested by Temple.

In the West of England there is ample evidence that *aegeria* does not require exactly the ecological conditions outlined above, nor is it restricted to any one type of habitat. This at first was correlated with range expansion (Chalmers-Hunt and Owen 1952) and views were expressed that changing habitat selection in the species might be a means of range expansion. This, however, requires further consideration.

TABLE 5.

Records of Lepidoptera driven from the Micro-habitat of *P. aegeria* in Berkshire, 1952.

Number of times observed.	Species chased.	Dates.
1	<i>Maniola jurtina</i>	17th June.
1	<i>M. tithonus</i> .	17th August.
1	<i>Polygonia c-album</i> .	23rd July.
1	<i>Argynnis paphia</i> .	13th July.
2	<i>Pieris rapae</i> .	17th May and 31st July.
1	<i>P. brassicae</i> .	25th June.
1	<i>P. napi</i> .	31st July.
1	<i>Ochlodes venata</i> .	26th June.
1	Small moth sp.	20th July.
1	<i>Anthocharis cardamines</i> .	5th May.

In the mountains of N. Wales, Thompson (1952 and *in litt.*) found a single brooded taxonomically separable ecological race, which he has called subspecies *drumenis*. It inhabits the bare mountain slopes well away from trees and bushes and it must have existed in isolation for some time to have so evolved.

Many correspondents inform me that there is a general tendency for *aegeria* to fly in open types of habitat in the west country (where it is more common), and that this has been the case for many years. This may well be due to the fact that even during the recent contraction of the species it remained abundant in the west. The most suitable habitats were therefore fully occupied, and any increase in numbers resulted in the occupation of less suitable habitats. During the recent spread of the species to the East, first attempts at colonization would be made in the most suitable habitat, followed by extensions into progressively less suitable country. This in fact is exactly what is happening to *aegeria*. When the population in a given area reaches a certain density (depending on the ecological suitability of the area) butterflies will move into new habitat-types and ultimately might colonize new areas.

PARARGE MEGERA (WALL BROWN).

Map 3 shows the present widespread distribution of *megera* in West Kent. There is evidence suggesting that fifty years ago the species was more restricted and that recently it has colonized new areas. Table 1 shows that the main habitats are heathland, chalk down and salt

marsh, but there is considerable overlap into other habitats, as the distribution map will suggest. An artificial yet important habitat is that of roadsides and paths. In some seasons the second brood is ubiquitous, and only with difficulty is it possible to observe the true habitats. Table 2 shows that the butterflies fly on or near the ground and that they visit flowers. Butterflies may commonly be seen resting high on walls and rocks and locally they fly among tall grass. The species is similar in ecological requirements to *E. semele* whose habitat it frequently shares.

Typically *megea* is a species of dry downland and heath country, and its colonisation of the Thames marshes may be a recent adaptation to be correlated with an extension of range. In some areas it occurs well into open woodland, especially when surrounding conditions are favourable. Butterflies of the second generation often fly into lucerne fields where they are attracted by the flowers. Oviposition takes place here and individuals of the partial third generation seem to hatch almost entirely in lucerne in some districts. These tend to remain among the flowers with other Satyrids.

TABLE 6.

Third broods of *P. megea* in West Kent.

Year.	Date.	Numbers.	Locality.
1947	17th Sept.	1	Shoreham.
	17th Sept.	1	Crockenhill.
	20th Sept.	2	Crockenhill.
	21st Sept.	1	Shoreham.
	27th Sept.	1	Shoreham.
	27th Sept.	2	Eynsford.
	4th Oct.	1	Lewisham.
	5th Oct.	2	Eynsford.
	12th Oct.	4	Eynsford (worn).
	19th Oct.	4	Eynsford (worn).
	26th Oct.	3	Eynsford (worn).
1948	10th Oct.	7	High Halstow marshes.
1949	25th Sept.	2	High Halstow marshes.
	25th Sept.	3	Cliffe.
	2nd Oct.	4	High Halstow.
1950	5th Oct.	abundant.	Cliffe and Halstow marshes.

Table 6 shows all my records of the third generation of *megea* in West Kent for the years 1946-1951. It will be apparent that in some years this is of more frequent occurrence than others. For instance, the long dry summer of 1947 was favourable for many species of butterfly in West Kent, and the third brood appeared early in mid-September continuing on until late October, when the cold nights set in and killed off all remaining butterflies, including many immigrants. The following years until 1950 were only moderately good for the third brood in West Kent. On 5th October 1950 it was abundant on the Halstow marshes, where on 8th October no butterflies of any species were seen, following a rapid drop in temperature. No third brood *megea* were seen in the autumn of 1951; the second brood was still flying on 11th September.

It seems that this extra generation of *megea* is dependent on favourable climatic conditions. Butterflies are never as numerous as in the second generation. This indicates that the brood is made up of individuals which would normally have over-wintered to the following spring, but had emerged early as a result of favourable conditions. Collier (1951) found that in captivity *megea* normally produced three broods in a year without excessive forcing.

MELANARGIA GALATHEA (MARBLED WHITE).

The present extreme localization of this species in West Kent brings forward an intricate problem, especially when in point of fact many apparently suitable areas exist. Distribution Map 4 shows that it is completely absent from the Downs and high ground to the north, and exists only in the Chattenden area, where it is abundant, though there is some evidence that even here it has decreased in recent years. This species has only recently become so restricted in range in West Kent, for in the *Victoria County History* (1908) it is recorded as common on the chalk at Shoreham and Strood, and in the *Woolwich Survey* (1909) it is said to be common near Bexley, at Eynsford and Shoreham, and even as near London as Shooter's Hill two were recorded in 1858. A few were also reported at about this time from Green Street Green and Chelsfield. J. M. Chalmers-Hunt informs me (*in litt.*) that W. A. Cope last saw the species at Shoreham in 1916, but in 1950 four were seen nearby at Magpie Bottom by H. E. Hammond and one between Cudham and Downe in 1935 by F. R. Browning. The origin of these individuals is decidedly obscure, unless a number of undiscovered colonies exist. This is not improbable for J. M. Chalmers-Hunt informs me that H. E. Hammond found *galathea* present in fair numbers above Trottescliffe in 1950. This locality has been omitted from the distribution map, but there is now considerable evidence that a colony must exist somewhere in the vicinity. An exhaustive search through the entomological journals would doubtless reveal further records; the above will suffice to indicate that only recently has it become more or less restricted to Chattenden.

Blackie (1951) has outlined briefly some problems relating to the range and distribution of this butterfly in England, and considers some aspects of its uneven distribution and tendency to disappear and reappear in some localities. He also mentions the tendency for the species to be confined to well defined colonies and to wander from these late in the season; this indeed might account for certain of the West Kent records and confirms my own observations at Chattenden and elsewhere in Kent, particularly at Folkestone where many were seen in gardens and cultivated fields in 1948. It has already been shown that in West Kent there has been a contraction of range during the present century, and this might, in part, be attributed to the great increase in cultivation which would result in the isolation of colonies to small areas and in some cases extinction.

Elsewhere in Kent, particularly in the east, *galathea* is found commonly on chalk and other types of terrain and apparently there has not been any significant contraction of range within the present century:

indeed there has been an increase in some areas. Near the coast between Deal and Folkestone it is specially abundant. In Oxfordshire, Berkshire and Gloucestershire *galathea* is an abundant species inhabiting many grassy slopes, and is common as a roadside butterfly in some parts.

Table 1 shows that in West Kent the butterfly is at present found only in rough fields and Table 2 shows that the micro-habitat is tall grass. There is, however, considerable overlap into bramble hedges where flowers are visited, and elsewhere it has been recorded from short grass and open woodland. At Chattenden the habitats of *galathea* border the main woodland boundary and extend into rough pasture fields, where grazing by cattle is probably an important limiting factor.

The Chattenden habitat of *galathea* is unique (for West Kent) in one respect, and this requires further consideration. Four other Satyrids, *M. tithonus*, *M. jurtina*, *C. pamphilus* and *A. hyperanthus* are found in the same area. *P. megera* penetrates into this habitat rather more than usual, and there is some indication that *P. aegeria* might eventually overlap to a lesser extent. Reference to Table 2 will show that four species, *tithonus*, *jurtina*, *pamphilus* and *hyperanthus* may also occupy the same micro-habitat, though all have alternatives. If competition does exist it would be reasonable to suppose that it would be most intense in this region where more closely related species than usual occur.

EUMENIS SEMELE (GRAYLING).

Table 1 shows that this species is restricted to three main types of habitat, chalk down, heathland and open woodland. Table 2 shows that the butterflies fly near the ground, whereon they rest. Ground resting does not occur in one of the three habitats, woodland, where tree trunk resting is the normal behaviour. The distribution in West Kent (Map 5) seems to be limited by the habitat, which is essentially dry. For this reason it seems common only in one open woodland, Darenth, but it has been recorded rather frequently from Joyden's Wood and St. Paul's Wood, suggesting a small permanent population.

Of the three main habitats, heathland seems most favourable for a high population, but within the heath areas in West Kent the butterfly is localized to small patches which must in some way be ecologically more suitable than the remaining areas. The colony at Hayes Common illustrates admirably this type of micro-distribution. Here the butterflies fly in great profusion in a small area, which is more open and exposed than the rest of the Common, into which they rarely wander. It is difficult to see why the rest of the Common is not selected, for it is apparently suitable, comprising tracts of heather and birch with dry open patches in which one would normally expect to see *semele*. Such irregularities in distribution are even more remarkable when the population is high in a small area. Since the amount of food plant is small for the enormous number of larvae which must exist in this colony, it is probable that intraspecific competition is intense. For this reason alone one would expect the butterflies to colonize apparently favourable surrounding areas. On Dartford Heath

the topography is more uniform and *semele* is found over a much wider expanse, though not in such large numbers. But even here there is a tendency for certain patches to support more butterflies, which to the casual observer look identical with surrounding areas. It is probable that *semele* occurred in more heath habitats nearer London in the past. One is recorded for Lewisham in 1871 (*Woolwich Survey* 1909) and J. F. Burton caught a single butterfly on Blackheath in August 1947. This may well have been the last specimen for this locality, for since then the conversion of rough heathland into playing fields has taken place with considerable rapidity.

The chalk downs share with the heath the characteristic dryness, and *semele* is much more widespread and common, but never occurring in local profusion as at Hayes. This may well be expected, since the amount of habitat available is larger; indeed it is probably true to say that *semele* is found in almost every uncultivated chalky field in West Kent. Map 5 illustrates clearly that on the chalk the distribution is continuous, whereas outside this area colonies exist largely in isolation. On the chalk the imagines are to some extent adapted to an artificial micro-habitat in their preference for worn paths where the bare face of the chalk is exposed. Here they rest and fly in considerable numbers and in some instances may be absent from the rest of the field. Similarly a new mole-hill where the chalk is temporarily exposed provides a suitable micro-habitat. In some localities pieces of dead wood lying on the ground are used as resting places, especially when bare open patches are limited. This in fact is a trend towards the tree trunk resting habit which has been developed by butterflies inhabiting dry woodland, where ground resting is impossible owing to vegetation.

In West Kent the open deciduous woodland type of habitat seems to be well represented only in Darenth Wood. Even here the species is restricted to the more exposed parts where secondary cover is absent and only a broken tree canopy exists. The butterflies fly over the bracken which grows to form dense ground cover 3-6 feet in height: this is not used for resting. Resting is almost exclusively on tree trunks, usually birch; many butterflies sometimes congregate on one tree.

There seems to be a slight difference in emergence dates in some habitats. In 1952 males were found hatching at Hayes (heath) on 5th July and the following day none were seen on the chalk Downs to the south, where on 20th July of thirty examined only two were females, suggesting that the butterfly had not long been out. (In the Satyridae males invariably appear ahead of the females.) Table 2 shows that *semele* does not usually visit flowers, but this is not always the case as there are a number of scattered records in the literature. On Foxall Heath, Suffolk, I saw twelve butterflies on flowering Buddleia in 1947; this, however, is exceptional.

Towards the end of the season (Table 3) individual butterflies "wander" considerable distances, a habit which seems present in other Satyridae, notably *M. galathea*. Since *semele* is limited in habitat by certain ecological barriers which are apparently unimportant in such

species as *P. megera*, it is difficult at first sight to appreciate the full significance of this late in the season dispersal. My own records for West Kent appear in Table 7.

TABLE 7.
Dispersal of *E. semele* in West Kent.

Date.	Numbers.	Locality.	Habitat.
17th Aug. 1947.	Few.	Joyden's Wood.	In fields bordering wood.
29th Aug. 1947.	?	Eynsford.	In lucerne field.
2nd Sept. 1947.	1	Shoreham.	In lucerne field.
7th Sept. 1947.	1	Eynsford.	In lucerne field.
29th Aug. 1948.	1	Cliffe.	Salt marsh.
7th Aug. 1949.	Small colony.	Higham.	Salt marsh.
30th July 1951.	Several.	Joyden's Wood.	In fields bordering wood.
21st Aug. 1951.	Few.	Lodge Hill Wood.	♀ ♀ in agricultural country.

The Joyden's Wood records might have been the result of a slight shifting of territory of a probable open woodland population. Those at Shoreham and Eynsford were butterflies from adjacent chalky slopes which had moved into lucerne, as did many other species in 1947 (Table 9). The single record from such an unsuitable and damp habitat as Cliffe salt marsh in 1948 is of special interest in view of the occurrence of a colony in the neighbouring marsh at Higham the following year. This demonstrates admirably the ability of a species to colonize a new habitat and form a colony, which owing to unfavourable ecological conditions was in this case only temporary. Similarly, in the spring of 1948 a migrant butterfly *Colias hyale* L., which had not previously been recorded as wintering in this country, emerged in some number in lucerne fields in the Eynsford district. These must have resulted from eggs deposited the previous autumn, when, as an immigrant, the species was unusually common. A combination of two factors, a favourable winter and the preservation of an otherwise temporary habitat (a lucerne field) contributed towards the possibility of this remarkable event for a butterfly which was thought to be unable to survive the rigours of an English winter. (Details in Owen, 1948a and 1948b).

MANIOLA TITHONUS (HEDGE BROWN).

Table 1 shows that this species is found in three main habitats in West Kent, heath and common, deciduous woodland and rough fields. The former is roughly intermediate between the two remaining habitats. If grass and brambles are plentiful, felled deciduous woodland may be selected in addition. Previously (Owen 1950) a salt marsh habitat had been described for North Kent, but recent observations have led me to believe that this is most exceptional. In 1947, when the above published observations were made, many butterflies dispersed into new habitats and the regular occurrence of *tithonus* in salt marsh was due primarily to favourable climatic conditions. In some areas where deciduous woodland meets the marshes, as at Northward Hill, there is a slight overlap in habitat. Table 2 shows that the micro-habitats of *tithonus* are tall grass and hedges (especially bramble) where flowers are visited. There

is a slight overlap into the lower woodland secondary cover, and in some areas the butterflies fly among short grass.

Map 6 shows the rather discontinuous present distribution in West Kent; the absence from calcareous soils is of special interest. Occasionally odd individuals have been seen on the Downs, but these are probably strays wandering late in the season. The butterfly is recorded as being completely absent from Darenth Wood, on the edge of the chalk (Owen 1951), but after publication of this paper one was seen late in the season in 1951. A few miles west, in Joyden's Wood, *tithonus* is abundant. My observations in other areas suggest that *tithonus* is always scarce or absent on calcareous soils, and Scott (1950) indicates that in the Ashford district of Kent it is scarce on the Downs though abundant in woods elsewhere. Embry and Youden (1950) state that it is completely absent from the Dover district, where chalk down is dominant. Whether *tithonus* has always been absent from the Downs in West Kent is unknown. There is evidence that formerly it had a wider distribution in the area than at present, but local records seem rather unreliable. The *Woolwich Survey* (1909) referring to North-west Kent states that it is locally common, but decreasing, and lists Shooter's Hill, Lee, Lewisham, Blackheath, Eltham, and Abbey Wood. Webster (1902) lists Greenwich Park. It certainly no longer exists in any of the above localities, very probably as a result of increased urbanization.

A comparison of the present distribution (Map 6) and ecological requirements (Tables 1-2) of this species and *A. hyperanthus* is of interest. Both have similar habitats, except that *hyperanthus* is most numerous on the Downs, where *tithonus* is absent, and on heathland *tithonus* is abundant and *hyperanthus* comparatively scarce. Little is known of any difference in the ecology of the immature stages, but the imagines are to be found flying in similar micro-habitats. Moreover, there is an average seasonal overlap of at least five weeks (Table 3). In some localities (e.g., at Chattenden) the two species seem to exist in equal numbers, but in my experience, it is usually only one species which is really common in one area. Such differences as these may be a result of interspecific competition in the past.

MANIOLA JURTINA (MEADOW BROWN).

This butterfly is numerically and geographically the most abundant of the Satyridae in West Kent; indeed it is probably the most numerous of all butterflies in this country. In addition it has adapted itself to varied ecological conditions to a greater extent than other Satyridae, with the possible exception of *C. pamphilus*. Table 1 shows that it is found in all the main habitats except heath and common, but even here it often outnumbers a less numerous species which has been placed in this category, *P. megera*. Table 2 shows that the butterflies fly among tall grass and near hedges, but there is a considerable overlap into short grass. It is rare in the secondary cover, and like all Satyridae, most exceptional in the canopy. Almost everywhere it is the dominant species, being only occasionally outnumbered by *A. hyperanthus*. It

survives equally well in dry and damp situations, and although grazing is doubtless responsible for terrific reductions it holds its own in most pasture fields.

M. jurtina is generally distributed throughout West Kent (Map 3), and although scarcer towards London, occurs commonly in gardens and parks, and formerly on bombed sites. Owing to its wide distribution and general abundance it flourishes even where its habitats are drastically altered by man. There seems to be always a steady flow of individuals into a new area once this becomes suitable for colonization.

Table 3 shows that *jurtina* first appears on the wing in the second week of June and continues on until the third week of October. This in fact seems to represent two broods at least occasionally, for fresh butterflies sometimes hatch in large numbers in September. Late butterflies are not always in evidence; for instance in 1952 very few were seen after the end of August.

COENONYMPHA PAMPHILUS (SMALL HEATH).

Table 1 shows that this species is found chiefly in the more open type of habitats. It is rarely seen in woods, but seems equally common on salt marsh, heath, downland and in rough fields. Table 2 shows that it flies among grass, where flowers are visited. Short moorland grass is preferred; such conditions are, however, rare in West Kent. In West Kent it is widely distributed (Map 3), penetrating well into towns, where it survives in parks and on railway banks. With the possible exception of *M. jurtina* it is the only Satyrid which still flourishes as near London as Lewisham and Greenwich, where it became temporarily abundant during the bombed site era. Little has been written of its past distribution in West Kent, and there seem to be no records of any range variation in the country as a whole. Most habitats with the ecological conditions outlined above are occupied, with the possible exception of areas supporting a large population of a closely related and larger species, *Coenonympha tullia*. [This latter butterfly is a northern species inhabiting damp situations, particularly peat mosses by the sea. My own observations in the Solway district suggest that *pamphilus* does not persist in the same areas as *tullia*, but further data are required before any conclusions can be formed.]

APHANTOPUS HYPERANTHUS (RINGLET).

In Table 1 it will be seen that the important habitats of *hyperanthus* in West Kent are chalk downs, deciduous woodland and rough fields; to these it is necessary to add that it also occurs on heathland, though is never really abundant there, and has been found on salt marsh (Owen 1950). This later type of habitat is in many ways remarkable, for well defined colonies exist on the wind-swept marshes, far from brambles or higher vegetation. I have been unable to find information on any colonies in similar salt marsh habitats. Table 2 shows that the butterfly flies among tall grass, near hedges and in woodland secondary cover. There is, in addition, overlap into short grass and near ground, but the latter is rather exceptional. In many respects the ecological require-

ments of *hyperanthus* are similar to those of *M. jurtina*, a butterfly which is almost invariably more widespread and common. In S.W. Scotland in 1951 I found *hyperanthus* was the dominant species of the two in a selected sample area.

The present distribution of *hyperanthus* in West Kent is shown on Map 7 where it will be seen that it is widespread, except in built-up areas. Formerly it occurred much nearer the London suburbs than at present, and further building will doubtless have an adverse effect.

The colour of the underside of the wings of *hyperanthus* is in Kent rich chocolate brown, becoming progressively greyer further north, where in Scotland it is quite distinct. Specimens selected from localities from south to north show a cline in colour (and size of spots), and have therefore not been separated taxonomically. Should the northern populations become isolated from those in the south, divergence into sub-specific rank might be expected. There is also a larger proportion of unspotted forms (ab. *arete*) in the north; in Kent these are comparatively infrequent.

ECOLOGICAL ISOLATION IN THE SATYRIDAE.

In the foregoing account the ecology of the Satyridae has been outlined briefly, with special reference to habitat selection and micro-habitats. Much of this is hypothesis and for this reason it is probably dangerous to theorise at any length. Nevertheless the principles outlined on page 15 seem to apply to the Satyridae in West Kent.

The occurrence of butterflies in certain habitats at the present day is doubtless partly dependent on the intense cultivation and felling of woodlands. This may not have always caused a decrease in numbers of butterflies, indeed the provision of more fields may in some ways have been beneficial to the grass feeding Satyridae. Grazing probably limits the micro-habitat of such species as *Maniola jurtina*. On the North Kent marshes where grazing is intense *jurtina* is most abundant on sea-walls, where the grass is not cropped by cattle.

Examination of the present habitats in West Kent for ecological isolation may be misleading, for most species of butterflies will have become adapted to environmental conditions caused by man. However, certain differences do exist and although these will probably have become apparent in the preceding pages they are summarized here.

A good example of ecological isolation in the British butterflies is found in two closely related species of the Lycaenidae, *Lysandra coridon* and *L. bellargus*. These species inhabit the same type of country and the larvae feed on the same food-plant, *Hippocrepis comosa*. In addition one is often extremely abundant and the other is often very common. However, the imagines appear at different times, one species being double brooded. *L. coridon* flies mainly in July and early August, while *L. bellargus* flies in May and June and as a second brood in late August and early September. The larvae therefore feed at different rates and actual competition might be minimised should the food-plant ever become scarce. Competition for flowers by the imagines could also occur.

Seasonal differences in any two related species of the Satyridae do not seem important (except possibly in one instance outside the study area), for as shown in Table 3, species in the same genus or species with similar ecology may fly at the same time. Detailed accounts of differences in the rate of development of the larvae in the wild state are unobtainable at present. Such data would prove invaluable for the study of ecological isolation in closely related species of butterflies.

Habitat differences are detectable in the adult butterflies; these almost certainly indicate similar differences in the immature stages. *Pararge aegeria* is primarily a woodland insect, flying rather high between bracken/bramble vegetation and the woodland secondary cover, whereas *Pararge megera* is a species of open country where it flies near the ground in exposed situations. The former very rarely visits flowers, the latter feeds to a large extent from flowers. These two species differ markedly in ecology where they occur together, and it would be of interest to study the habitat where only one is found. Likewise *Maniola tithonus* and *Maniola jurtina* make an interesting comparison. The former is found abundantly on commons at the edges of and in woodlands, where it flies among bracken and bramble but overlaps into tall grass. *M. jurtina* although common almost everywhere, is most abundant in open country where it flies in great numbers among tall grass. It is least common in heathy country and woodland. The requirements of the larvae of these two closely related species probably differ to at least the same extent as the imagines. Both *jurtina* and *tithonus* are common and considerable overlap is evident, but critical examination of the ecological niches filled by each shows differences which are presumably sufficient to eliminate interspecific competition. Thus in West Kent species of Satyridae in the same genus (therefore most closely related) differ in ecology by habitat selection.

Elsewhere the two species of *Coenonympha* differ in ecology (page 33). *C. tullia* occurs most commonly in damp mosses and on damp hillsides in the north of England and in Scotland, whereas *C. pamphilus* flies in almost every available grassy place, except where *tullia* is abundant. The latter is also single brooded flying in late June and July, and *pamphilus* is at least double brooded flying mainly in May and August, though it is often on the wing continuously from May to September (Table 3). In addition the two species differ in size, *tullia* being considerably larger.

It is now possible to show differences in species having similar ecology. *Pararge megera* and *Eumenis semele* occur in the same type of habitat, but the former is able to adapt itself to very variable conditions, whereas the latter is confined to rather restricted areas. Where *semele* is extremely common *megera* seems to be scarce, although it may occur all round the area occupied by the former. Also *megera* is at least double brooded; consequently its larvae feed up at different rates from those of *semele*. It is also important to bear in mind that at present *megera* seems to be on the increase and does in fact colonize new areas with remarkable rapidity. This results in individual butterflies of this species regularly flying greater distances than *semele*. It might be said

that *mege*ra has a higher “activity range” than *semele*, a term first used by Timofeeff-Resovsky (1940) to indicate the area within which individuals of a single generation of animals may move.

It has already been shown that *Maniola jurtina* and *M. tithonus* differ in ecology, and the latter differs in distribution from *Aphantopus hyperanthus*. This species is most abundant on the chalk downs where *tithonus* is scarce, and *tithonus* is most abundant in heathy country where *hyperanthus* is less numerous. The habitats and micro-habitats of the imagines are similar (Tables 1 and 2). It is not known to what extent the larvae differ in ecological requirements. In some areas this difference in local geographical distribution might have resulted from competition, but it should be stressed that the two also often co-exist in large numbers. Possibly some areas are more favourable than others and are able to support a large population of each species. Observations in the north, where *tithonus* is absent give the impression that there *hyperanthus* is much more varied in habitat.

Thus the modern concept of ecological isolation seems applicable to certain of the Satyridae in West Kent. Two species with the same ecology do not exist in the same area, resulting in the elimination of inter-specific competition. Many more data are required before the theories here put forward can be interpreted as fact.

THE DISPERSAL OF BUTTERFLIES DURING FAVOURABLE CONDITIONS.

This short chapter is intended to discuss the observed behaviour of certain species of butterflies under exceptionally favourable climatic conditions, which are all too infrequent in this country. Long periods of sunshine with low rainfall are on the whole unfavourable to butterflies, especially if this occurs about mid-summer when many species are hatching. On the other hand prolonged fine weather with rain at times seems to provide very suitable conditions. Such was the case in 1947 which in West Kent was remarkable for the abundance of many species, including all the regular immigrants. An indication of favourable conditions is that some species produce partial or full extra broods. This was so in 1947, as shown in Table 8.

TABLE 8.
Butterflies represented by extra broods in 1947.

Species.	Brood.	Dates and Numbers.
Satyridae		
<i>Pararge mege</i> ra	Third	September-October (see Table 7)
<i>Coenonympha pamphilus</i>	Third	October (few)
Nymphalidae		
<i>Limenitis camilla</i>	Second	8th September (1)
Lycaenidae		
<i>Lycaena phlaeas</i>	Third	September-October (full brood)
<i>Polyommatus icarus</i>	Third	September-October (common)
Pieridae		
<i>Pieris brassicae</i>	Third	October (many)
<i>Pieris rapae</i>	Third	October (many)

Reference has already been made on several occasions to butterflies in fields of sown lucerne and clover. These offer temporary habitats with an abundance of flowers, and butterflies moving during fine weather often remain to breed in such places. In most cases the fields are cut and ploughed by late autumn and any offspring of butterflies which occurred therein earlier would be exterminated. The year 1947 was remarkable in that many species visited lucerne and clover fields in great numbers. These included all the regular immigrants, and butterflies which had produced extra broods. Table 9 shows all my personal records of species in lucerne and clover fields in 1947.

TABLE 9.

Butterflies in Lucerne and Clover, 1947.

Species.	Numbers.	Remarks.
Satyridae		
<i>Pararge megera</i>	Late second and nearly all third brood	Third brood hatched in lucerne
<i>Eumenis semele</i>	Few worn, late in season	Tends to wander during this period
<i>Maniola jurtina</i>	Common	Temporary colonies established
<i>Coenonympha pamphilus</i>	Fairly common	Mainly third brood
Nymphalidae		
<i>Argynnis aglaia</i>	Common, males only	Before females hatched
<i>Vanessa atalanta</i>	Fairly common, immigrant	At flowers
<i>Vanessa cardui</i>	Abundant, immigrant	At flowers
<i>Aglais urticae</i>	Common, second brood	Bred on edges of fields
<i>Nymphalis io</i>	Abundant	Occurs annually in lucerne
<i>Polygonia c-album</i>	Few	Stragglers
Lycaenidae		
<i>Aricia agestis</i>	Fairly common	Second brood only
<i>Polyommatus icarus</i>	Fairly common	Second and third broods
<i>Lysandra coridon</i>	Fairly common	Lucerne near main habitats
<i>Lycaena phlaeas</i>	Common	Mainly third brood
Pieridae		
<i>Pieris brassicae</i>	Abundant, reinforced by immigrants	Third brood locally hatched
<i>Pieris rapae</i>	Abundant, reinforced by immigrants	Third brood locally hatched
<i>Pieris napi</i>	Common	Second brood
<i>Colias hyale</i>	Common, immigrant	Offspring of early arrivals
<i>Colias croceus</i>	Abundant, immigrant	Offspring of early arrivals
<i>Gonepteryx rhamni</i>	Common	From hatching until hibernation

The immigrant species are often the most numerous in lucerne and clover fields. This is not surprising, for one of the more notable characteristics of species which arrive in this country from overseas is that the habitats are very varied. This ability to adapt to many types of

habitat probably has considerable survival value to butterflies whose numbers are kept up largely (or in some cases entirely) by annual immigrations.

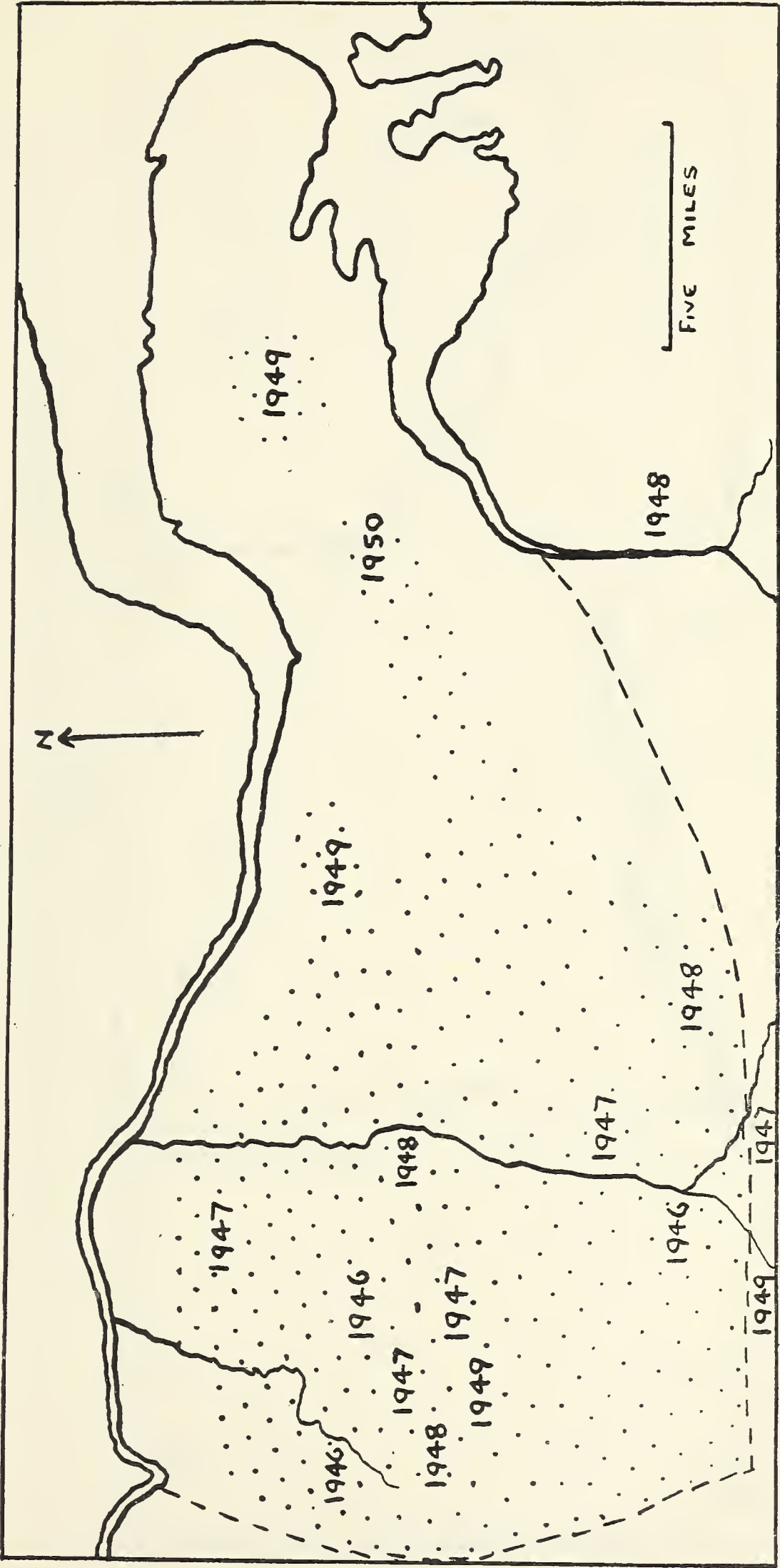
Summarizing, it seems clear that many species move into new habitats when their numbers are high or when climatic conditions are favourable, (as demonstrated by movement into lucerne and clover fields). This in some cases results in the establishment of temporary colonies which may survive several years. It is reasonable to suppose that certain local variations in range may be indirectly correlated with dispersal during favourable conditions.

ACKNOWLEDGMENTS.

I am glad to acknowledge the advantage of having discussed the ideas set out in this paper with a number of entomologists. In addition Messrs. D. Cunningham and L. Parmenter have made many useful suggestions and Mr. J. M. Chalmers-Hunt has kindly placed at my disposal his latest records of the distribution of certain species in Kent.

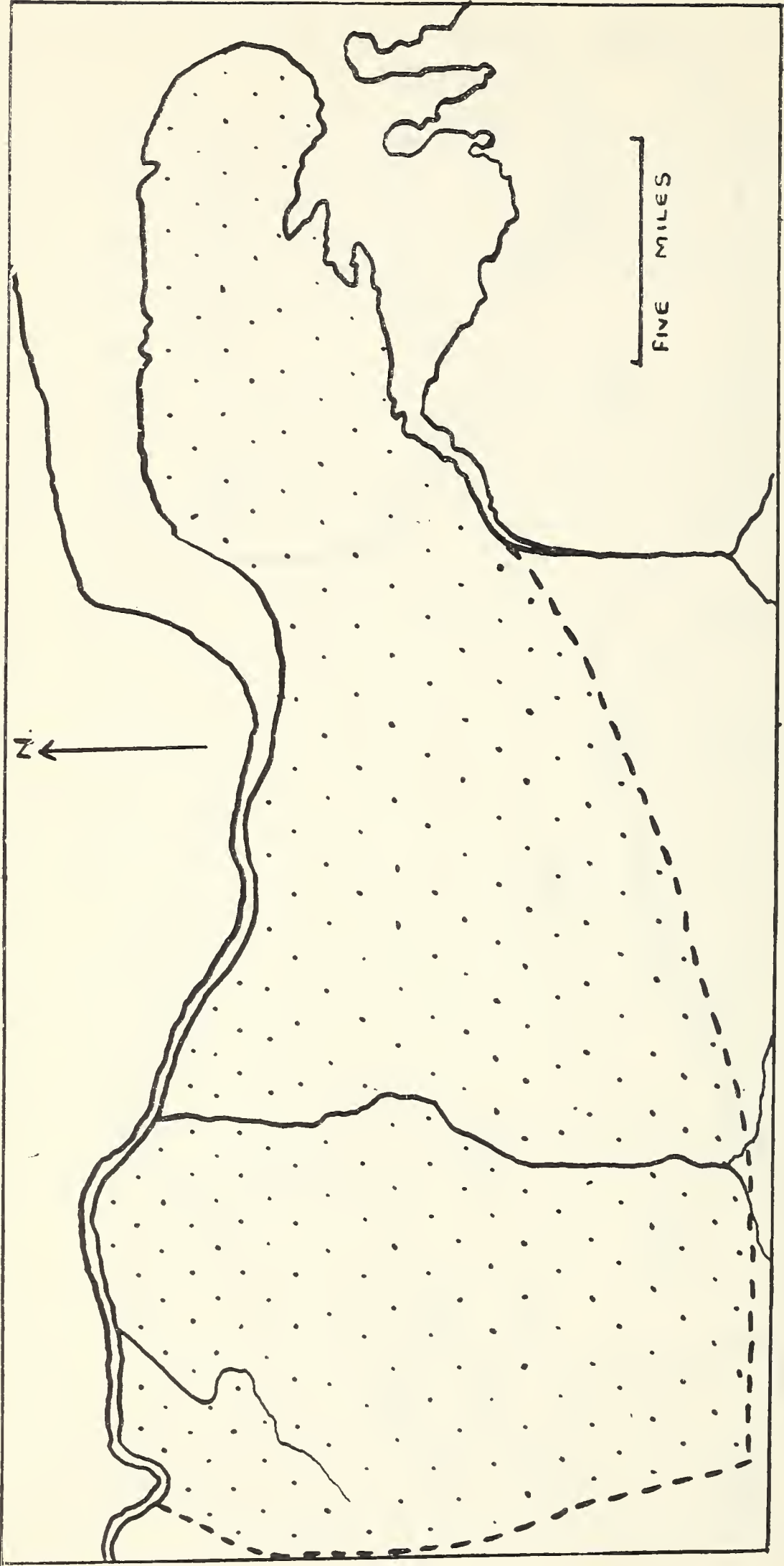
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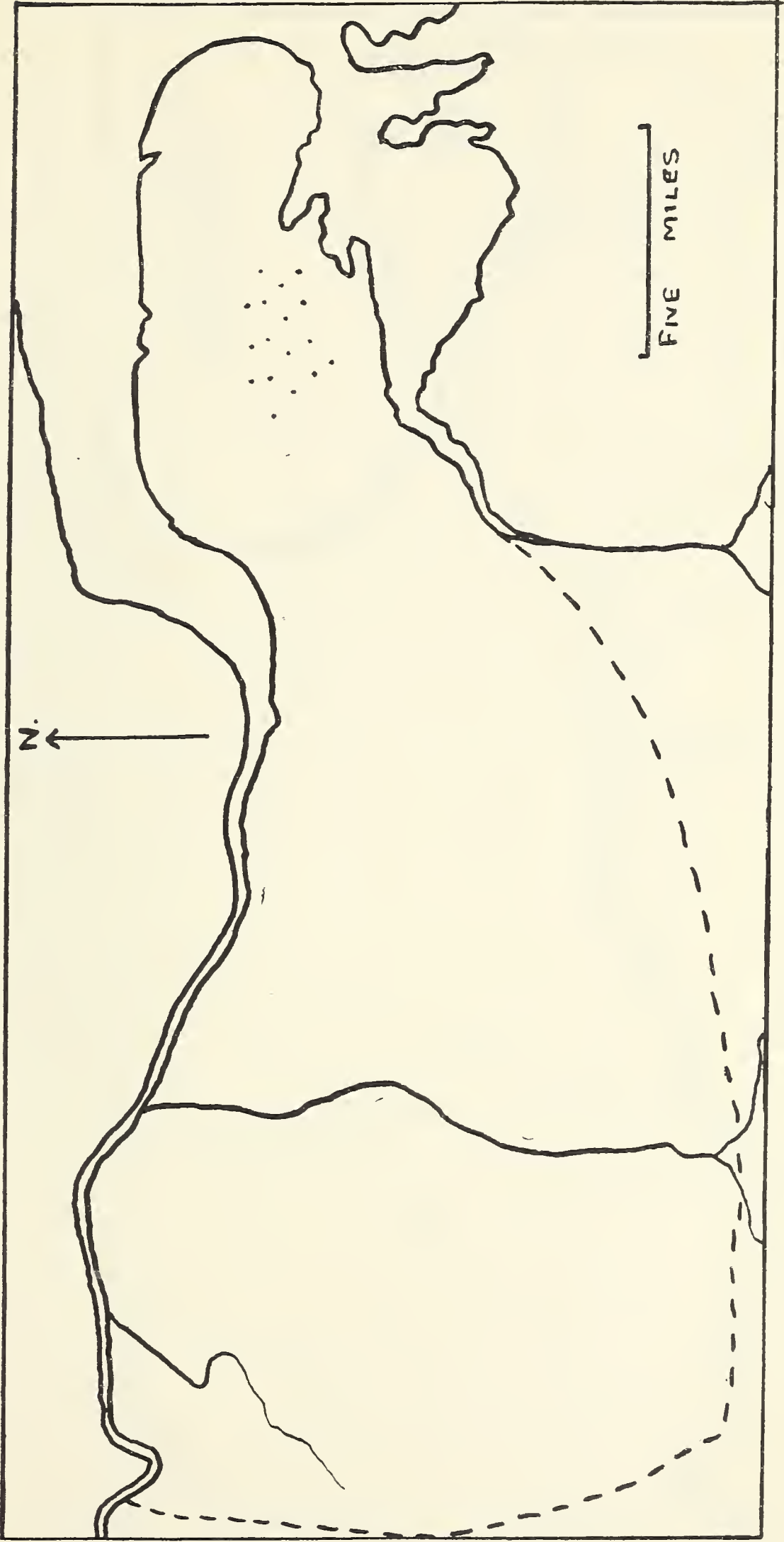
Map 2.

The present distribution of *Pararge aegeria* in West Kent showing dates of re-colonization. (Adapted from Chalmers-Hunt and Owen, 1952).

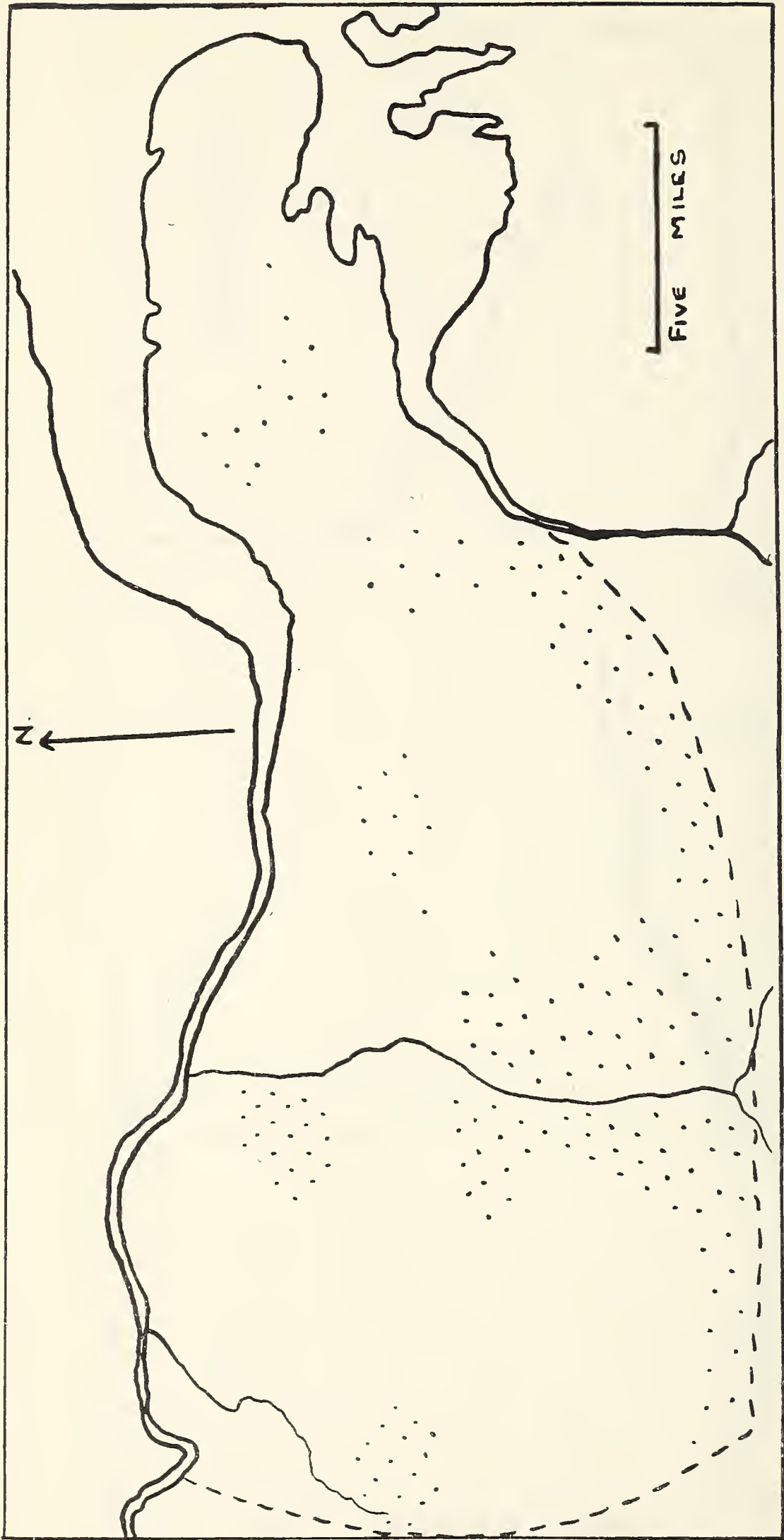


Map 3.

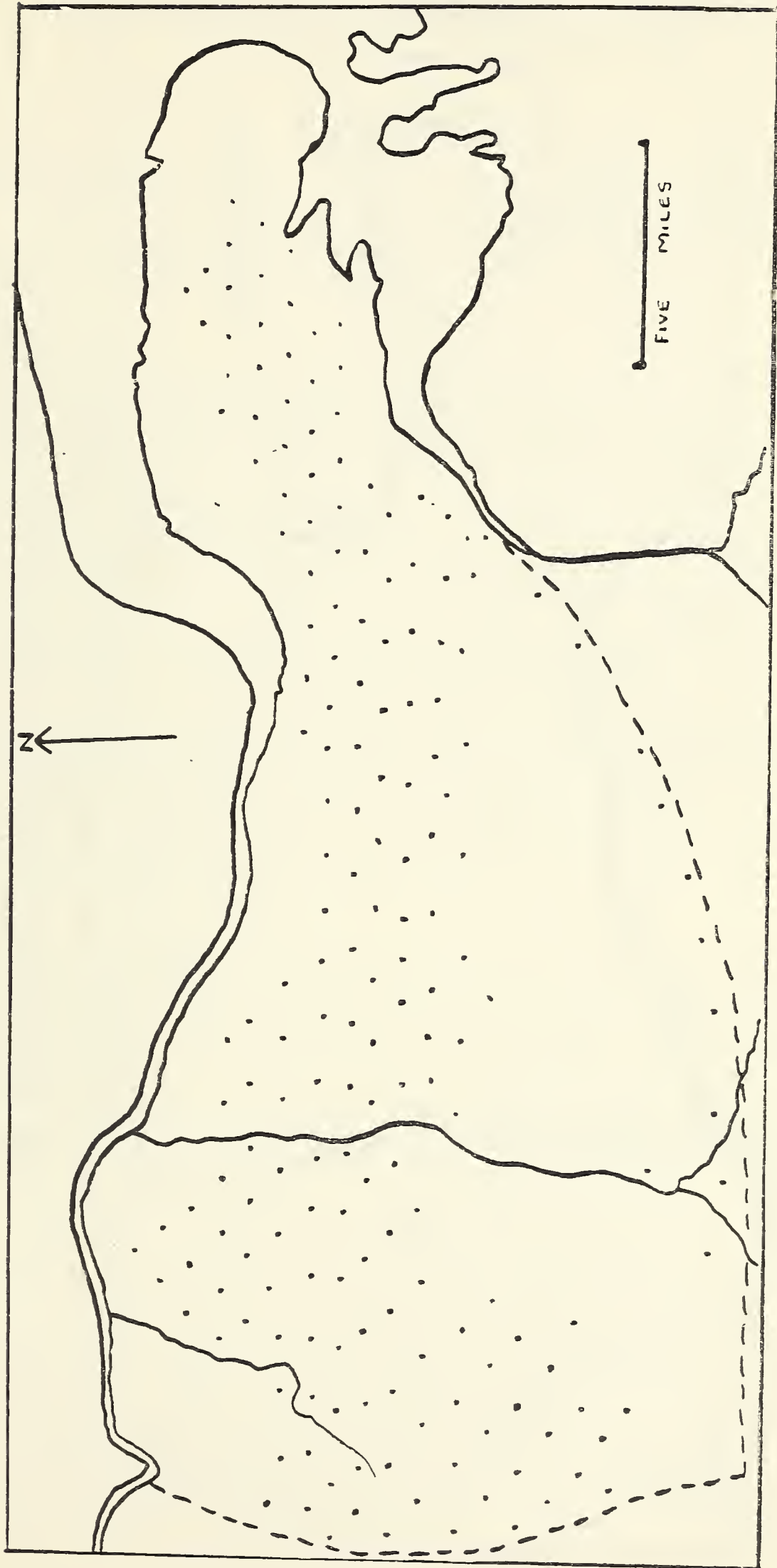
The present distribution of *Pararge megera*, *Maniola jurtina* and *Coenonympha pamphilus* in West Kent.



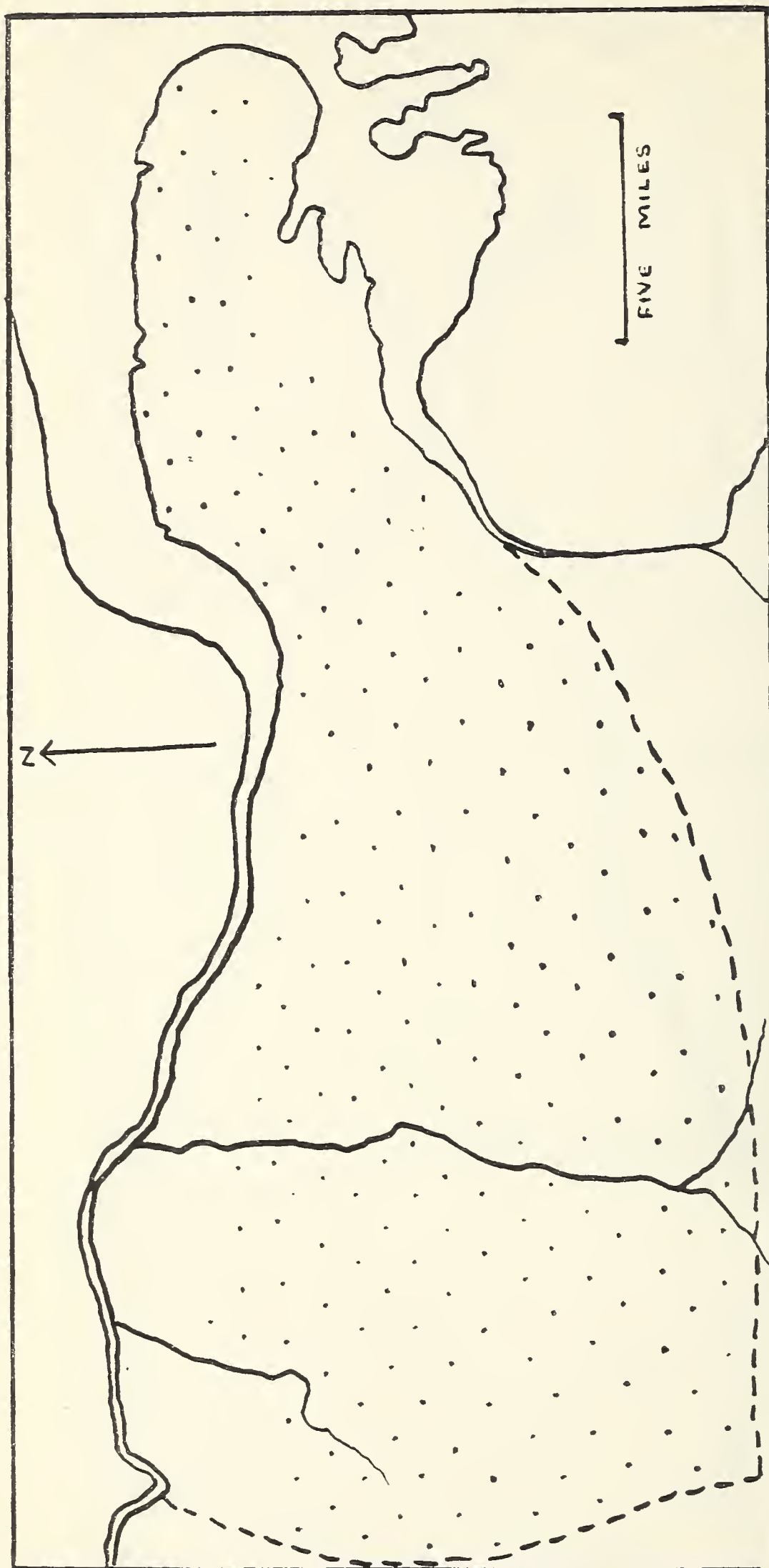
Map 4.
The present distribution of *Melanargia galathea* in West Kent.



Map 5.
The present distribution of *Eumenis semele* in West Kent.



Map 6.
The present distribution of *Maniola lithomus* in West Kent.



Map 7.

The present distribution of *Aphantopus hyperanthus* in West Kent.

The Survey of Bookham Common.

ELEVENTH YEAR.

Progress Report.

REFERENCE is made to the increased attendance in 1952 at the Bookham field meetings and to the production of a Bookham Common Survey Bulletin in the Section's Annual Report, to which the reader is referred for further details.

VEGETATION.

During the year, a much stronger botanical team was regularly at work; it comprised Messrs. Bangerter, Castell and Groves, Mr. and Mrs. Hall and Mr. Jones, while other members helped occasionally. In the first half of the year, however, much of its time was taken up, in collaboration with Mr. Rutledge, in the mapping and photographing of the ant-hills, shrubs and the principal herbaceous vegetation of two areas in Central Plain favoured by grasshoppers. They were areas of long grass, 100 ft. by 120 ft. and short grass, 60 ft. square. Later in the year the areas were left to the grasshoppers and Mr. Rutledge while the team turned their attention to the ponds and hollows. A little time was also spent in collecting and observing willows in Eastern Plain. Although many botanical records and observations were made during the year, progress in the revision of the provisional duplicated check list of Flowering Plants was slower than anticipated and it was decided at the end of the year to concentrate on this work during 1953 with a view to publication in the following year. Messrs. Bangerter and Jones provide the following reports.

WILLOWS OF EASTERN PLAIN.

"In April, willows were collected from those gun-pits having bushes mature enough to bear catkins; the *Salix* spp. recorded in the published list for pits E and H have still to be investigated. Mr. and Mrs. P. Hall assisted in the collecting and marking of the bushes, for which they kindly supplied the metal tags. Messrs. Bangerter and Groves collected foliage in September from the marked bushes. Dr. A. Melderis, to whom we are indebted, has identified the material as follows: *S. atrocinerea* Brot. from pits A, B, J, and the entrance to pit F (also from the margin of the Isle of Wight Pond near Hollow Wood); *S. caprea* L. from the entrance to pit D (and from the edge of Hollow Wood north of pit A); *S. caprea* var. *rotundifolia* Gaud. from pit D. Willows have now, therefore, been recorded for pits A and B and should be added to the list; the *Salix* at the entrance to pit F was noted in 1951 and should also be added. In some cases heights were noted at both times of collecting in 1952 and the comparison shows that the bushes nearly doubled their height during the season, as the following examples show: *S. atrocinerea* (pit F) from 7-14 ft., (pit J) from 7-12 ft.; *S. caprea* and its var. *rotundifolia* (pit D) from 5-8 ft. It may be of interest to note

that the material taken was not good as, in addition to the young state of most of it, the bushes all showed evidence of heavy attack by leaf miners, etc., and the *S. atrocineria* was also infected by the rust, *Melampsora* sp. (kindly determined by Mr. J. B. Evans). The specific determination is uncertain in the apparent absence, in the vicinity, of an alternate host (such as *Larix*) for the aecidiospore stage." E.B.B.

PONDS AND HOLLOWS.

"The preliminary survey of the ponds, begun last year, has been continued. The ponds fall into three groups and comparisons are being drawn within each:—

(a) The Hollows Group, comprising the ponds and hollows from the Upper Eastern to the Isle of Wight Pond. Each has been divided into divisions or areas corresponding with the plant communities. Special attention is being paid to Isle of Wight Pond (including the marshy area to the east) which has a complex pattern of vegetation, 14 divisions being recognised. A vegetation map to the scale of 1:400 has been specially prepared for this pond. In the case of the hollows, two interesting subjects for study arise:—

- (1) The invasion of these former ponds by woodland species.
- (2) The difference in vegetation between the hollows and the so-called ponds.

(b) Large Isolated Ponds, comprising South-East, Sheepbell, Kelseys and Bayfield Ponds. These have been divided into somewhat arbitrary divisions, the vegetation being rather sparse or ill-defined.

(c) Bomb-craters and Minor Ponds, excluding the gun-pits.

The ponds generally are in a very poor state: Sheepbell Pond (much shaded by trees) is the only permanent pond, undergoing little fluctuation in water level; all other ponds become largely dry in summer. Three of the craters retain some water during the summer." A.W.J.

DIPTERA.

The results of Mr. Niblett's intensive study of the distribution of the larvae of the Trypetidae appear on p. 48.

The following reports by Col. Bensley, Mr. Le Gros and Dr. Beven summarise their investigations, during the year, on Mollusca, Spiders and Birds respectively.

MOLLUSCA.

"The monthly counts of freshwater mollusca from the Isle of Wight Pond are being discontinued to allow time for other investigations. Work is being concentrated on the populating of such accidental ponds as the gun-pits and bomb-craters by mollusca. The results, so far, are largely negative but there are curious appearances and disappearances not entirely due to the presence or absence of water in the ponds. For example, in the Bomb Crater just south of Hill House Wood [5447] the colony of *Planorbis cristata*, which was flourishing in 1946, seems to have

gradually died out, even though the crater never gets completely dry. Of the gun-pits, only A and C have really acquired the status of ponds and although they do dry out at times, they now usually show a small, but fairly constant, molluscan population when they fill again. The two apparently established species in both the pits are *Pisidium obtusale* and *Planorbis planorbis*. Most of the other pits do not contain mollusca, though pit J has become a favourable habitat for the Garlic Snail (*Oxychilus alliarius*). These matters will be discussed when sufficient data for a paper has been assembled." C.J.F.B.

SPIDERS.

"Some new host records were made in an investigation into the hymenopterous parasites of spider eggs. The most interesting was the breeding of a Chalcid '*Pteromalus*' *amplissimus* Morley from the egg sacs of *Dictyna arundinacea* L. An unidentified Eulophid, a hyperparasite, was bred in some numbers from the egg sac of *Araneus cornutus* Clerck.

Ichneumonids bred from the egg sacs of spiders were *Ischnurgops geniculatus* Thom (host, *Agroeca brunnea* Bl.); *Tromatobia ocellaria* Fab. (host, *Gongylidium rufipes* L., a Linyphiid spider) and *Gelis zonatus* Forst. (host, *Araneus redi* Scop.). I am indebted, once again, to Mr. J. F. Perkins for the identification of these parasites.

A female Gnaphosid spider, kindly identified by Mr. G. H. Locket as *Micaria subopaca* Westring, the first of its sex to be discovered in Britain, was secured on August 30th in Hill House Wood at the base of an oak that Mr. P. W. E. Currie recently discovered to be infested by the rare ant *Lasius brunneus* Latr." A.E.LeG.

BIRDS AND MAMMALS.

"The team of ornithologists has continued its survey of the bird population of Eastern Wood, including the study of the volume of bird song there throughout the year. A more detailed report on this aspect appears on p. 65. Further observations on the feeding habits of birds have been made and the team is now collecting information on the status of certain birds from other parts of the Common, in an effort to bring the check list up to date. Regular counts of Grey Squirrels in Eastern Wood are continued, to study the variation in numbers. Some knowledge of the mammals of the woodland has been obtained from the collecting of pellets of the Tawny Owl." G.B.

Dr. Easton, and Messrs. Currie, Parmenter, Rutledge, Wheeler and Norkett are continuing their investigations into the Coleoptera, Hymenoptera, Diptera, Grasshoppers, Lepidoptera and the Bryophytes respectively.

It will be seen that there is considerable activity at Bookham, the results of which should be reflected soon in an increased number of papers in the *London Naturalist*.

C. P. C.

The Distribution of Trypetidae (Diptera).

By M. NIBLETT, F.R.E.S.

I have made an attempt to ascertain the distribution of Trypetidae on the Common by searching for the larvae on their food plants, and where necessary breeding the insects for identification. This method I feel gives a truer picture of their distribution than does the collecting of the mature insects.

Since 1929 I have visited the Common on numerous occasions, but during the earlier period the visits were not very frequent, and attention was paid chiefly to the gall-causing species. During the past few years a systematic search has been made, very many plants being examined in the field, or portions collected and taken home for breeding. During 1951 and 1952 about 10,000 flowers and fruits were collected for this purpose. It will be realized that it has not been possible to examine every group of plants over the whole area, but an endeavour has been made to take a fair sample in each square of the base map where their food plants occur. With some species their food plants do not occur with any great frequency, or are confined to small and often widely scattered areas. The numbers following the names of the species of plants refer to the squares on the map where the larvae have been found.

I have succeeded in finding the larvae of 24 species of Trypetids, and 3 other species have been recorded but I have failed to find any larvae of these: they are *Ditricha guttularis* Mg., *Ictericia westermanni* Mg. and *Spilographa zoë* Mg. There is the possibility that two or three other species may eventually be discovered, but as the known food plants of many of our British Trypetidae do not occur on the Common, not many additional species are likely to be found there.

I have made no attempt to make counts of the numbers of these flies, the area is too large to work single-handed, and there is a constant variation in the numbers of a particular species. This may be due to a variety of causes such as the disappearance of its food plant, the drift to other areas due to wind or air currents, or attacks of parasites, and with a flower inhabiting species late flowering may cause a considerable diminution or its entire absence from a particular area; the above are points that might well be worth studying.

The nomenclature used is that of J. E. Collin, *Ent. Rec.*, 1947.

Phagocarpus permundus Harris.:—The larvae live in the berries of *Crataegus monogyna* (25, 34, 41, 42, 43, 45, 46, 49, 55, 56, 58, 66, 67, 68, 76, 82, 85, 86, 87, 88, 89, 94); they leave them when full fed to pupate in the earth, the flies emerging in late May and in June of the following year. The larvae may be found from September onwards. They were not very numerous in any of the areas quoted.

Philophylla heraclei L.:—The larvae inhabit mines in the leaves of various Umbelliferous plants during June and July; these they leave to pupate in the earth, and the flies emerge in July and August of the same year. I have found these larvae on *Angelica sylvestris* (44, 46, 47, 67), on *Apium nodiflorum* (59), on *Heracleum sphondylium* (42, 48, 57, 59, 88,

89), and on *Pastinaca sativa* (57, 59, 81, 84, 85, 88, 89), in moderate numbers.

Acidia cognata Wied.:—Larvae were found in some numbers in leaf mines on *Tussilago farfara* (67, 68, 86, 87, 89), but rarely before September. They leave the mines to pupate in the earth, the flies emerging in June of the following year.

Zonosema alternata Fln.:—The larvae live in Rose hips and are to be found in them during September and October, leaving them to pupate in the earth; the flies emerge in the following May and June. These larvae were found on *Rosa arvensis* (25), and on *R. canina* (25, 41, 45, 46, 48, 49, 54, 56, 57, 58, 59, 65, 66, 67, 68, 76, 84, 85, 86, 87, 88, 91), in some numbers in most areas.

Chaetostomella onotrophes Lw.:—The larvae live and pupate in flower heads and may be found from July onwards; this species sometimes has two broods and at times a retarded emergence, part emerging in July or August and the remainder in the following May or June. *Centaurea nigra* (35, 41, 42, 45, 46, 49, 57, 67, 73, 81, 89) appears to be the favourite host plant, and the larvae also occurred in fair numbers on *Cirsium palustre* (25, 27, 46, 56, 59, 76, 82), but 1724 flowers of *Cirsium arvense* (54) gave me only one fly, the only *onotrophes* I have bred from that plant from any locality.

Trypeta falcata Scop.:—Larvae were found in the autumn in the roots and stems of *Tragopogon minus* (46, 84), where they pupate, the flies emerging in May and June of the following year. They appear to be rather scarce.

Trypeta ruficauda F.:—The larvae live in flower heads forming a cocoon of pappus hairs in which they eventually pupate. They were found in some numbers in most areas from July onwards, the flies emerging in the following June. The favourite host plant is *Cirsium palustre* (18, 25, 27, 38, 42, 46, 49, 55, 56, 59, 61, 63, 73, 76, 82, 83, 85, 86, 89), but they were also found on *C. arvense* (42, 49, 88, 91) and on *C. pratense* (83).

Trypeta tussilaginis F.:—The larvae live in the seeds of Burdock where they usually pupate. The flies occasionally emerge in September or October of the first year, but the main emergence is in June and July of the second. Numerous larvae were found in most areas where *Arctium minus* (19, 38, 39, 56, 59, 86) their host plant occurs.

Terellia serratulae L.:—Larvae were found in flower heads of *Cirsium vulgare* (49, 57, 88, 89), from August onwards, not as a rule in any number; they pupate in the heads in a rather loose cocoon of pappus hairs and the flies emerge in June and July of the second year.

Xyphosia miliaria Schrnk.:—*Cirsium arvense* (25, 42, 49, 56, 59, 63, 67, 76, 81, 85, 86, 88, 91, 94) appears to be the favourite host plant of this species and the larvae are generally plentiful from August onwards; they feed and pupate in these flower heads as they do also in those of *C. palustre* (38, 46, 55, 58, 61, 67, 88, 89, 94). The main emergence is in May and June of the second year, but there is at times an emergence in August and September of the first.

Urophora cardui L.:—The familiar galls caused by the larvae of this species on stems of *Cirsium arvense* (25, 27, 42, 43, 45, 46, 48, 49, 51, 54, 55, 56, 57, 58, 59, 65, 67, 68, 73, 76, 81, 82, 84, 85, 86, 87, 88, 89, 91, 94) have frequently occurred in considerable numbers. The larvae pupate in the galls and the flies emerge in May and June of the second year.

Urophora jaceana Hering.:—Hard woody galls in flower heads of *Centaurea nigra* (25, 41, 45, 46, 49, 53, 57, 59, 67, 73, 81, 89, 91) caused by the larvae of this species were found in some numbers from July onwards; they pupate in the galls and the flies emerge from May to August of the following year.

Urophora quadrifasciata Mg.:—The larvae of this species live and pupate in the achenes of *Centaurea nigra* (42, 45, 53, 67, 73, 82, 91) and were generally quite plentiful in a number of areas where their food plant occurred. This is a double-brooded species, the flies emerging in July and August of the first, and May, June and July of the second year.

Urophora stylata F.:—The larvae cause hard woody galls in flower heads of *Cirsium vulgare* (18, 38, 42, 44, 46, 49, 57, 59, 68, 76, 81, 85, 89, 94) where they pupate, the flies emerging in June and July of the second year. Numerous galls were found in the areas noted.

Myopites blotii Bréb.:—Galls in flower heads of *Pulicaria dysenterica* (58, 82, 84, 85) caused by this species I have found comparatively few of although the food plant is plentiful. The larvae pupate in the galls, the flies emerging in July and August of the second year.

Ensina sonchi L.:—The larvae of this species live and pupate in flower heads of numerous species of Compositae; on the Common I have only found them in those of Sowthistles, but usually in some numbers (on *Sonchus arvensis* (49, 85, 88), on *S. asper* (81), and on *S. oleraceus* (49, 84)). The flies emerge from July to September of the first year, there probably being a succession of broods.

Hoplochaeta pupillata Fln.:—The larvae live and pupate in flowers of *Hieracium umbellatum* (62, 63), causing them to swell and remain closed; the food plant is scarce but the larvae were found in some numbers. The flies emerge from July to September of the first year, and in April and May of the second.

Oxya flavipennis Lw.:—The larvae of this uncommon species cause galls on the roots of *Achillea millefolium* (86), from which the flies emerge in July. I have only found it once here.

Sphenella marginata Fln.:—The larvae of this not uncommon species inhabit flowers of various species of *Senecio*, causing them to swell and remain closed. It appears to be very scarce on the Common and the larvae have only been found three times on *S. erucifolius* (59, 81, 85); in 1951, 1200 flowers of that plant contained only one larva. The larvae pupate in the flowers, the flies emerging in August and September of the first year.

Paroxyna elongatula Lw.:—The larvae of this species live and pupate in flower heads of *Bidens tripartita* (57, 58). They were found for the first time and in considerable numbers in August 1949, numerous flies

emerged during that month and no larvae have been found since, although an intensive search has been made each year. It was observed that the flowers of the host plant were very late in appearing in 1950; this is a hibernating species and there is the possibility that all the flies of the previous year had died before any flowers had appeared for them to oviposit in.

Tephritis bardanae Schrnk.:—The larvae live in flower heads of Burdock; they commence their existence in the seed which they leave to pupate in the head, the flies emerging in August and September of the first year. These larvae were found to be fairly plentiful in the following areas, on *Arctium majus* (42), and on *A. minus* (19, 38, 39, 42).

Tephritis conjuncta Lw.:—The larvae of this species live and pupate in flower heads of *Chrysanthemum leucanthemum* (49), the flies emerging in June and July of the first year. Its host plant is scarce on the Common, but is plentiful on the railway embankment to the south-east of the Common; it is probable that the majority of these flies that have been captured were intruders from that area. Very few larvae have been found.

Tephritis vespertina Lw.:—The larvae which are usually plentiful live and pupate in flower heads of *Hypochoeris radicata* (18, 19, 42, 44, 56, 57, 81, 82, 84, 85, 89, 91), the flies emerging from June to August of the first year.

Trypanea stellata Fuess.:—This is another species that I have only found once on the Common. Although large numbers of its host plant have been collected only one larva has been found, this in 1949 on *Senecio erucifolius* (85). The flies emerge in August and September of the first year; the larvae pupate in the flower heads.

Further Observations on the Bird Population of an Oakwood in Surrey (Eastern Wood, Bookham Common).

By GEOFFREY BEVEN.

The survey of Eastern Wood, Bookham Common, has been continued by the Ecological Section of the London Natural History Society, and some further observations are here reported. The main objects of this survey have been slightly extended, and are the discovery of:—

(i) The distribution and density of the territories of the breeding species.

(ii) Minimum figures for the summer and winter population, the variation in total population and of the numbers of some individual species throughout the year.

(iii) The correlation between the distribution of territories and variations in the nature and density of the trees and secondary growth.

(iv) Seasonal variation in the volume of song of certain species.

A description of the habitat, and of the main methods of study have already been given in a previous paper (Beven 1951), to which repeated reference will be made.

Habitat. Eastern Wood, which is a sample of the woodland of Bookham Common, is approximately 40 acres in extent and is about 1600 feet long and 1100 feet broad. About 2 acres of this are open rides and spaces, and the remainder is a typical mature pedunculate oakwood on a soil of damp clay. The vegetation has been previously described in broad outline (Steele 1947, and Beven 1951). In the last 2 years or so the undergrowth has been encroaching somewhat on the open rides and footpaths. This is happening especially with birch saplings, which are also growing rapidly in the "sparse hawthorn" area (I) at the south end of Eastern Wood. There seems to have been a slight tendency for the number of Robin territories to increase in this area in the last two or three years.

The wood has been mapped as a number of areas, differing in the density of trees and secondary growth, as determined by a series of samples. The details are mentioned in the previous paper, but for ease of reference the main areas and their total size are briefly listed as follows:—

I. Sparse Hawthorn. Total area 7 acres. Very sparsely scattered shrub with equal proportions of young and mature oaks.

II. Moderate Hawthorn. 15 acres. More hawthorn and some hazel with a moderate proportion of oaks.

III. Dense Hawthorn. 6 acres. This contains dense continuous hawthorn thickets.

IV. Hawthorn-Hazel. 3 acres. Abundant local hazel scrub. Moderate birch and hawthorn with predominance of young oak.

V. Dense Hazel. 5 acres. Sparse mature oaks with little ground vegetation.

VI. Birch-Hazel. 1 acre. Moderate oak, mostly young. Floor open almost bare.

Method. The general method of recording and mapping the birds has remained the same as in the previous paper. Every bird observed was recorded at each visit on a map (scale 1 in 2500). Visits were made at least once a month, and more often during the breeding season. The territories were largely estimated by mapping the constant positions of singing males as previously described.

OBSERVATIONS.

1. *The Territories of Singing Males, with particular reference to those of the Robin.*

Table I shows the approximate numbers of territories of 6 different species in the 40 acres. These were found during the years 1946 until 1952. Although more intensive observations have been made in recent years, it is probable that the density of Robin territories in the *spring*, decreased after the severe winter of 1946-7 and has increased since. Lack (1948) quotes figures to show how the Robin suffers during hard winters, and mentions that in 1946, after a mild winter, there were 6 breeding pairs on a farm in Monmouthshire, while in 1947, after a cold winter, there was only one pair. At Wytham Wood near Oxford, he



This illustrates the "Sparse-hawthorn" area (I). There is very sparsely scattered hawthorn and young birch, locally dense bracken with scattered brambles and rose.

Eastern Wood, Bookham Common. 29.7.50.

Photo by G. Beven.



This shows a footpath traversing "Moderate hawthorn (II)" type of vegetation, with "Dense hawthorn (III)" in the background.

Eastern Wood, Bookham Common. 15.4.51.

Photo by G. Beven.





This shows a broad path dividing into two and bordered by "Dense-hawthorn (III)" type of vegetation.

Eastern Wood, Bookham Common. 15.4.51.

Photo by G. Beven.



This illustrates the "Dense-hawthorn (III)" type of vegetation, and shows the dense hawthorn thickets.

Eastern Wood, Bookham Common. 15.4.51.

Photo by G. Beven.

counted 52 singing males in 1946, while in 1947 there were only 36. The reduction in numbers at Wytham is thus comparable with that in Eastern Wood. We do not yet know if the maximum number of Robins in Eastern Wood has been reached, especially as there is some indication that in parts of the wood, there has been an increase in the density of secondary growth in the last two or three years. During 1952 some felling of oak and birch trees occurred in several areas and it remains to be seen what changes may result from this. Nicholson (1951) considers that about one-fifth of cock Robins are unmated.

TABLE I.

The Number of Territories of Singing Males in Eastern Wood (40 acres) 1946-1952.

N.B.—A part of a territory is counted as $\frac{1}{2}$. Where there are no figures in the columns, no counts for that species were made that year.

Breeding Season	1946	1947	1948	1949	1950	1951	1952
Robin	24½	19	24	22½	28	28½	30½
Wren	—	—	11	17	20	20½	18
Willow Warbler	—	—	—	16½	21	16	15
Chiffchaff ...	—	—	—	1	2-3	4½	2-3
Blackbird ...	4	—	—	5	9	9½	11½
Chaffinch ...	5-7	—	—	9½	11	12½	9½
Autumn Territories							
Robin	—	—	approx 15	?	18-19	22-27	16

The Blackbird territories also show an increase in number in recent years. It will be seen that there is some variation in the figures for bird territories, from year to year. It is interesting to notice that Lack (1943) found a variation of from 7 to 11 Robin territories in the spring in an area at Dartington during the years 1935-37. On the other hand Southern and Morley (1950) found a relatively constant population of 4 or 5 pairs of Marsh Tits in a wood over a period of 6 years.

The numbers of *autumn* territories of the Robin, discovered during 1948, 1950, 1951 and 1952 were less than those for the spring. The data for 1949 is inadequate. Robin territories increased in number in December at Dartington, South Devon, 1935-37, in an area of woodland, orchards and quarries (Lack 1943). This increase was mainly due to some of the females having territories of their own. Nicholson (1951) considers that about half the hen Robins sing in the autumn. In Eastern Wood the total number of Robins during September and October seems to be very little less than in the spring; the volume of song during these two months is also little less than the average during the spring (see

TABLE II. TABLE SHOWING ACTUAL COUNTS MADE OF THE WHOLE OF EASTERN WOOD DURING 1951 AND 1952.

Species Number as in Handbook of British Birds (1941).	Species	1951												1952					
		January 14	March 11	April 8	April 15	April 28	May 6	May 12	May 26	June 10	June 23	July 8	July 21	August 12	September 9	September 29	October 14	November 11	December 9
3	Carrion Crow																		
5	Jackdaw	1						2	1	1	1	1							1
7	Magpie	4	1					1	1	2	5	1	1				4	3	2
11	Jay	5	6		5	6	2	5	3	2	7	9	6	6		3	7	9	5
14	Starling												1	1		1	2	1	
33	Bullfinch	3	3		2	2	2	7	16	20	13	3	3	4		1	3	2	8
41	Chaffinch	4	2	1	4	10	8					6	7	4		4	1	1	
93	'Tree-Creeper												3	4					
96	Nuthatch	2				5	1	2	3	2	3	1	2	2		5	2	1	1
97/98	Great Tit	12	7	7	6	13	3	10	4	3	3	23	3	2		9	12	9	3
99/100	Blue Tit	29	25	25	12	24	27	20	11	10	19	15	17	18	12	33	38	42	59
102	Coal Tit	2	1		2	3	4	2		1	4	5	4	2	3	2	1	4	2
107	Marsh Tit	6	1	1	1	2		2	1		4	4	5	3	6	2	1	1	2
108	Willow Tit													1	1	1			
107/8	Marsh or Willow Tit					1						1	2	0					
111	Longtailed Tit	20		4	2	1	2					2	2	4	4	1	11	12	32
	Tits (unidentified)	9	4		2	1		2			1	5	44	40	64	12	55	63	14
126/7	Goldcrest									1	4	3	4	4				8	3
129	Chiffchaff			7	2	3	4	4	7	2	4	3							
132	Willow-Warbler				3	14	11	8	15	13	12	5	14	3	1		6	2	2
161	Garden-Warbler					2		5	2	3	1	3			1		16	14	7
162	Blackcap							7	2	4	2	4		1			2	2	1
163	Whitethroat						1		1		1	1	1				3	3	2
175	Songthrush	1						2	1	3	8	3	1	3				2	2
184	Blackbird	18	10	14	6	19	14	19	23	21	14	14	11	3		9	15	17	17
208	Robin	13	15	31	26	32	24	37	30	21	20	18	30	15	22	34	35	30	9
211	Hedge-Sparrow			1			1			1	1	1						1	1

TABLE II (continued)

Species Number as in Handbook of British Birds (1941).	Species	1951										1952										1952													
		January 14	March 11	April 8	April 15	April 28	May 6	May 12	May 26	June 10	June 23	July 8	July 21	August 12	September 9	September 29	October 14	November 11	December 9	January 13	February 10	March 9	April 6	April 27	May 11	May 24	June 8	June 21	July 13	July 27	August 10	September 14	October 12	November 9	December 14
213	Wren	12	10	9	9	13	9	16	8	6	16	14	7	19	16	13	19	12	10	14	6	15	17	24	14	13	11	17	14	24	15	17	13	18	12
235	Green Woodpecker	3	3		1	1	1	3		3	2	6	2	2		2		1	1	1	1	1	1	1	1	1	3	2	3	3	2			1	2
237	Great Spotted W'pecker	3	3		1		2	1		1	2	1				2		1	1	1														2	2
240	Cuckoo							2	2	1			1																						
253	Tawny Owl	1	1			1							1					1						1		2	1	2		1				1	1
277	Sparrowhawk					2		1										1																	
380	Wood Pigeon	2	2		9	3	3		8	1	4		2	3	7	8	7	18	43	50	36	39	22	2	1	1	2	1	6	5	3	1	9	2	
393	Woodcock																				2			1											
517	Pheasant	1	3	2	1	3	2	1	3	1						1		1			1	1	2												
	Other species recorded once or twice only	3			2	1	1			3						1			1	1						3	2							2	
	Unidentified	1	2	19	1	8	6	10		8	13	17	13	6	4	6	9	3	4	3	2	1	2	8	9	4	9	10	9	8	5	1	1	1	5
	Totals	147	96	121	97	169	129	169	141	132	153	166	177	137	170	156	214	242	116	178	114	186	158	204	138	183	191	186	151	212	223	145	142	203	133

Tits in Flocks	35										12	12	45	45	75	27	62	111	12	34	10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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N.B. This table only includes the full counts for the whole wood. There were a number of other counts (and maps of territories) for parts of the area.

figure 7). It seems therefore most likely that the decrease in Robin territories in Eastern Wood in autumn is more apparent than real and is probably due to there not being enough observations then to draw up a complete map of territories. According to Lack (1948) comparatively few Robins winter in the interior of the woods. He points out that the Robin is a partial migrant, the majority of the females and a small proportion of the males migrating, while the others are resident. His paper suggests that food is more difficult to obtain during the winter in woods, than in semi-cultivated land and gardens. In the cold spell of January to March 1947, there were no Robins at all towards the end of the cold weather at Wytham Wood. Figure 7 does suggest that the Robin population is smallest during December, January and perhaps February in Eastern Wood. The decrease in numbers is not very marked but the winters were all fairly mild (Hawkins 1949, 1950, 1951, and 1952). Lack considers that a resident habit is favoured mainly among garden Robins and in mild winters, while a migratory habit has an advantage mainly among woodland Robins and in hard winters.

2 The Total Numbers of Birds.

The fluctuations in the total numbers of birds observed in Eastern Wood are shown in figure 1. The curves for 1951 and 1952 are compared with an average of the curves for the years 1949-1952. Also shown are the numbers of tits present in flocks, that is parties of 10 or more. It

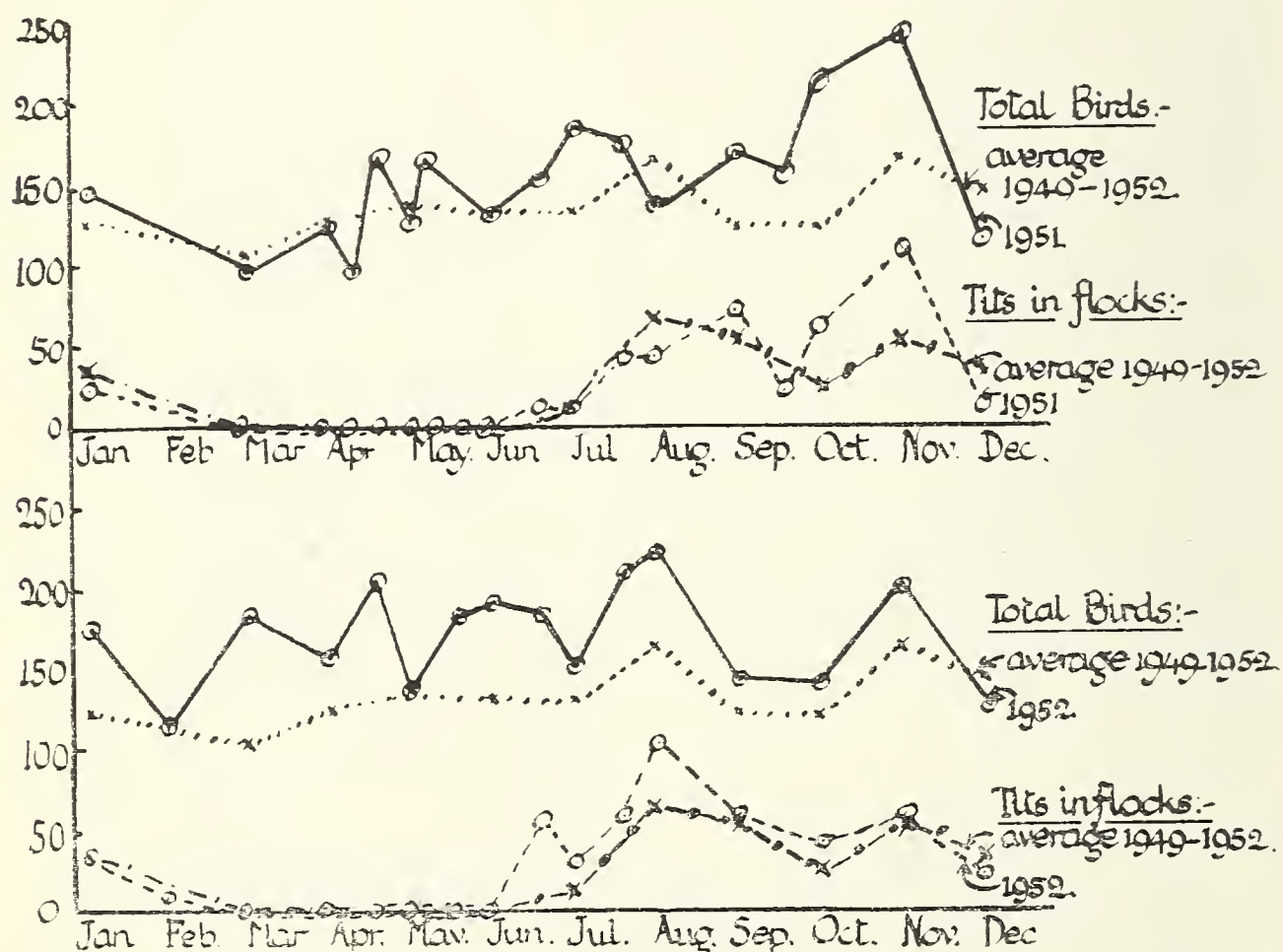


Fig. 1. The total number of Birds in Eastern Wood, and the number of Titmice in flocks of ten or more, 1949-1952. The numbers found in 1951 and 1952 are shown separately and compared with the average, 1949-1952.

will be noted that there were more birds present throughout 1952 than in the previous years.

The main trends previously described have been confirmed. The bird population seems to be at a minimum during February or March. The winter has taken its toll, the summer birds have not yet arrived. There is then an increase in numbers during April and May, when the summer visitors arrive, although there is also a great increase in conspicuousness at this time.

The minimum population during April to June in 1951 was between 100 and 170 birds, and in 1952 was between 150 and 200. The true values are probably greater, and the population in the breeding season therefore was probably more than 130 to 200 or 32 to 50 birds per 10 acres, during these two years.

There was the usual increase in total birds in July, when the flocks of tits begin to form. During the autumn and winter wide fluctuations in numbers occurred. These depended on whether several flocks of tits or other birds happened to be in Eastern Wood at the time of the count. The winter population during 1951 and 1952, excluding the wandering flocks, was apparently greater than in 1949 and 1950, and was between 80 and 150 birds (or between 20 and 38 birds per 10 acres).

3. *The Tit Population.*

Further observations on the fluctuations of numbers of the Tits, and their relation to flock formation, have been made. Figure 2 indicates the numbers of tits present in flocks and those not in flocks, throughout the years 1949 to 1952. Several interesting points arise and they are summarised as follows:—

(a) The tit population in winter varies between 10 and 140 birds. There are wide variations, depending on the presence and size of the flocks which wander over a larger area of the woodland. Gibb (1950) found that the population of Great and Blue Tits in Wytham Wood decreased from October until January or February, especially in the cold winter of 1946-7. This effect was not found in Eastern Wood during the period 1949-1952, but these winters were, on the whole, mild. Gibb also found the numbers of tits to increase again in March in Wytham Wood. On the other hand in Eastern Wood some of the tits have left this part of the woodland by February when the flocks have largely disbanded.

(b) The minimum population of tits in the breeding season was as follows:—

1949, 20-35 birds.	1951, 25-38 birds.
1950, 20-35 birds.	1952, 25-65 birds.

There thus seems to have been an increase in the breeding population of tits in 1952.

(c) June sees an increase in the population. These species of tits are usually single brooded, and in this month the fully fledged young form family parties, which are very conspicuous. A week or two later (end of June or early July) the tit families begin to band together and

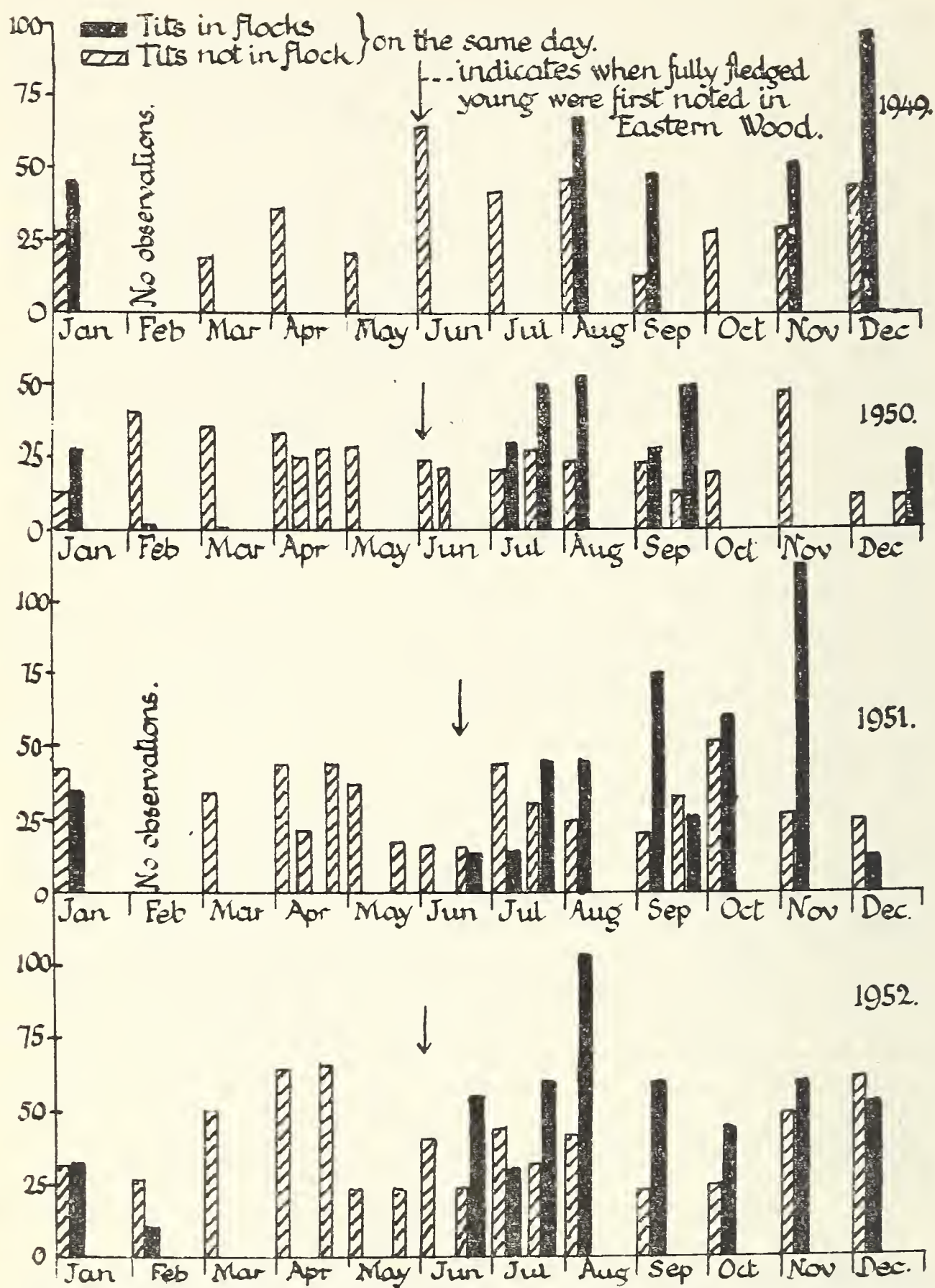


Fig. 2. Diagram showing the total number of Titmice observed in Eastern Wood compared with those not present in flocks. The dates when fully fledged young were first noticed are indicated.

form larger flocks, and the numbers thus in flocks increase rapidly. It is interesting to note from figure 2, that at this time there is *no significant decrease in the numbers of tits not present in flocks*. This suggests that the flocks are largely made up of young birds, and field impressions confirm this. In addition during the autumn and winter tits probably enter Eastern Wood from other parts of the woodland or perhaps the more open areas. Lack and Lack (1951) found many Blue Tits had arrived in the conifer plantations on the Breckland by August.

(d) The number of tits not in flocks remains relatively constant throughout the year (usually between 20 and 40 birds, and not much higher in April and May, except in 1952). The population of these scattered individuals is seldom much less than about two-thirds of the number in the early breeding season, and probably mainly represents the adult resident population.

The tits occurring commonly in Eastern Wood are Blue, Great, Long-tailed, Coal, Marsh, and there are a few Willow Tits. These are each identified wherever possible. When there are flocks of tits, however, it is often impossible to identify the species of every bird. In these cases all birds in a sample of the flock are identified, and the total numbers in the flock counted. The species composition of the flock can then be estimated approximately. Using this method the variations in the numbers of the different species of Tits in Eastern Wood has been estimated for the years 1949 until 1952. The results for the three most numerous species, Blue, Great and Long-tailed Tits, are shown in figures 3 and 4. The numbers of the other species of tits are relatively small. Figure 3 indicates the estimated total numbers of each of these species in the wood during those years. The occasions when fully fledged young were first observed are also recorded. The following points of interest may be noted:—

(i) Young Great and Blue Tits begin to emerge at about the same time, usually during June. This is to be expected. Lack (1950) and Gibb (1950) present evidence to show that the peak of "egg-laying" in the Blue and Great Tits is at the same time. Also the incubation and fledging periods are of approximately the same length. At Wytham Wood, the maximum number of nests of both species with young coincided very closely with the period of greatest abundance of certain moth larvae on which the nestlings were largely fed. In Eastern Wood the total numbers of Blue and Great Tits increase after this. During June or July the Great Tits may apparently exceed the Blue Tits in numbers. The significance of this, which happens at no other season, is at present obscure.

(ii) The numbers of Blue and Long-tailed Tits increase greatly in late summer, autumn and winter. On the other hand the Great Tit population does not increase further, after the sudden rise in June or July. The Blue Tits therefore come to predominate markedly in numbers in the latter half of the year.

(iii) There is a slight decrease in the numbers of both Blue and Great Tits during May. This must be apparent only, as there is the rapid increase in the following month. The volume of song is still high

(figures 12 and 13), but the increase in leafy cover and perhaps the pre-occupation with the feeding of the nestlings, may make the birds less conspicuous.

(iv) There are one or two pairs of Long-tailed Tits during the breeding season. More birds arrive with the visiting tit flocks during August and remain in the wood until the following February.

Figure 4 shows the estimated *Composition of the Tit Flocks*, as far as Blue, Great and Long-tailed Tits are concerned. It will be noted that Great Tits form a larger proportion of the flocks during June, July and August than subsequently. The great preponderance of Blue Tits in autumn and winter is shown. Although at times the numbers of

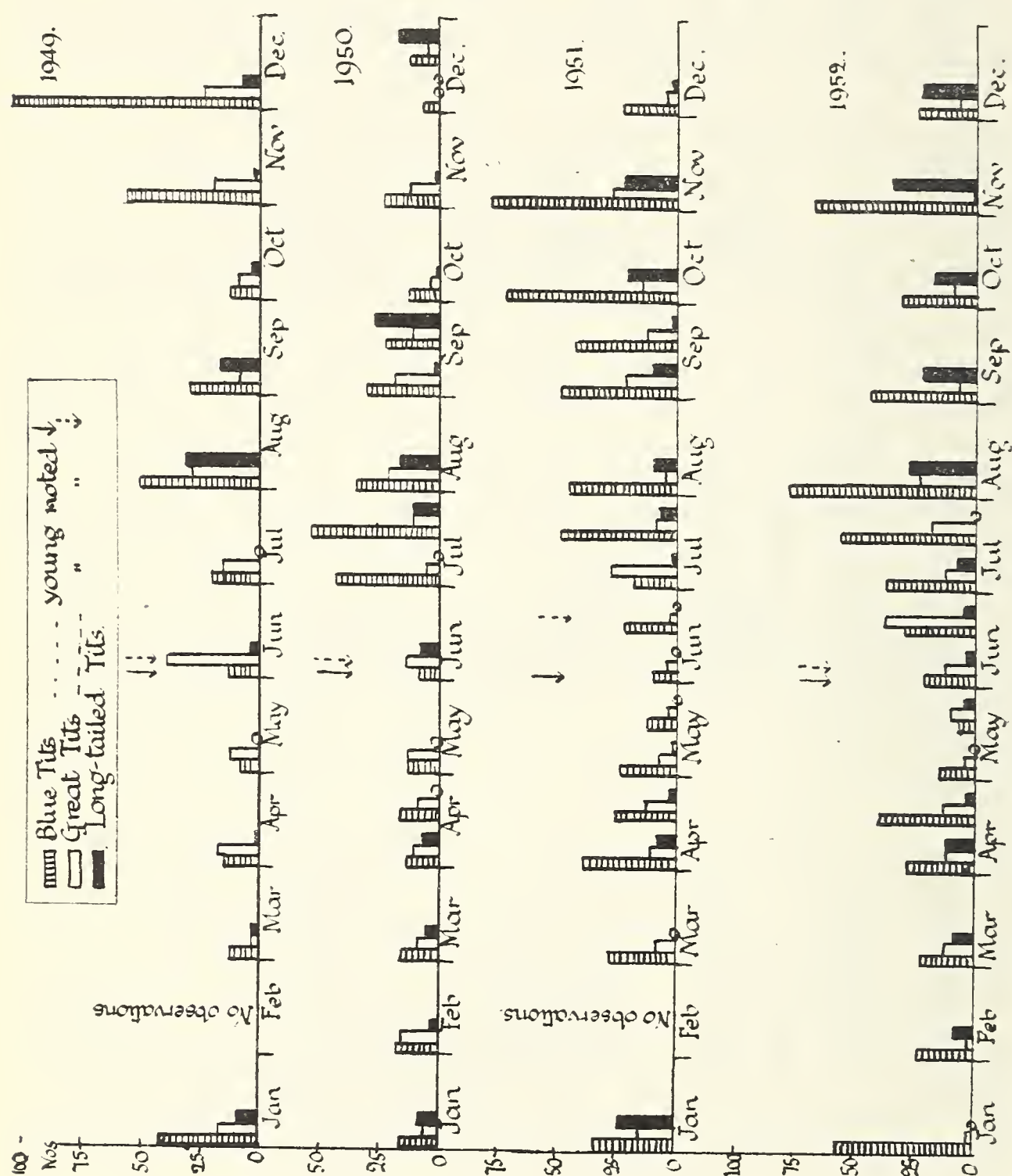


Fig. 3. The estimated total numbers of Blue, Great, and Long-tailed Tits present in Eastern Wood, 1949 to 1952. The dates on which fully-fledged young were first observed are noted.

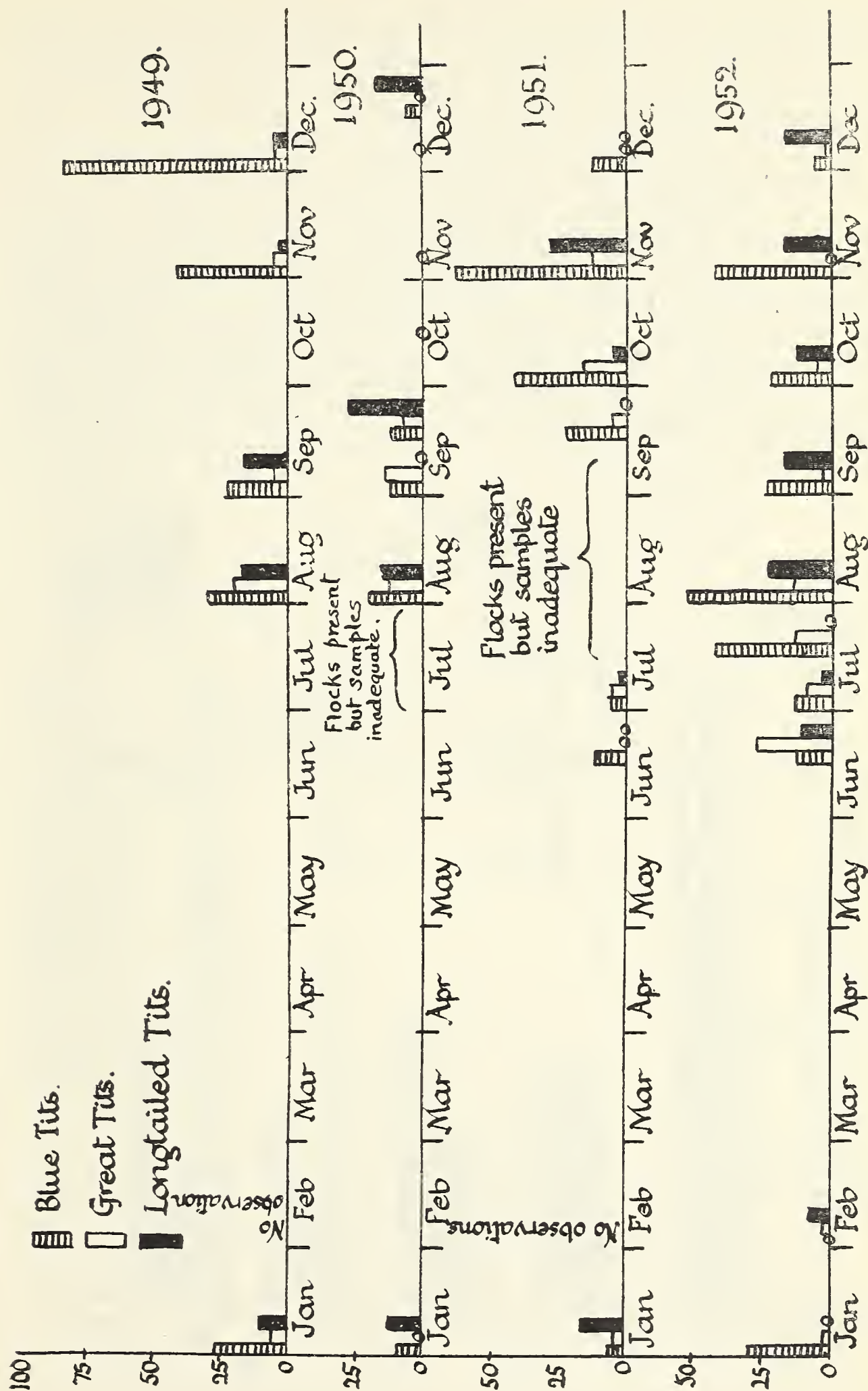


Fig. 4. The estimated numbers of Blue, Great and Long-tailed Tits present in flocks in Eastern Wood during the years 1949-1952.

Long-tailed Tits appear to approach those of Blue Tits, it should be remembered that "Long-tails" are more conspicuous and hence easier to count, so that probably the numbers of Blue Tits were actually greater still. It should also be remembered that the numbers involved in this investigation are small.

4. *The Distribution of Territories in relation to the Type and Density of the Vegetation.*

As already mentioned Eastern Wood has been mapped as separate areas according to the different density of trees and secondary growth (see also the map figure I in the previous paper). The number of territories or parts of territories in each area has been estimated, as already described, by superimposing the map of territories on to the map of the different areas of vegetation. Thus the density of territories in each area can be calculated.

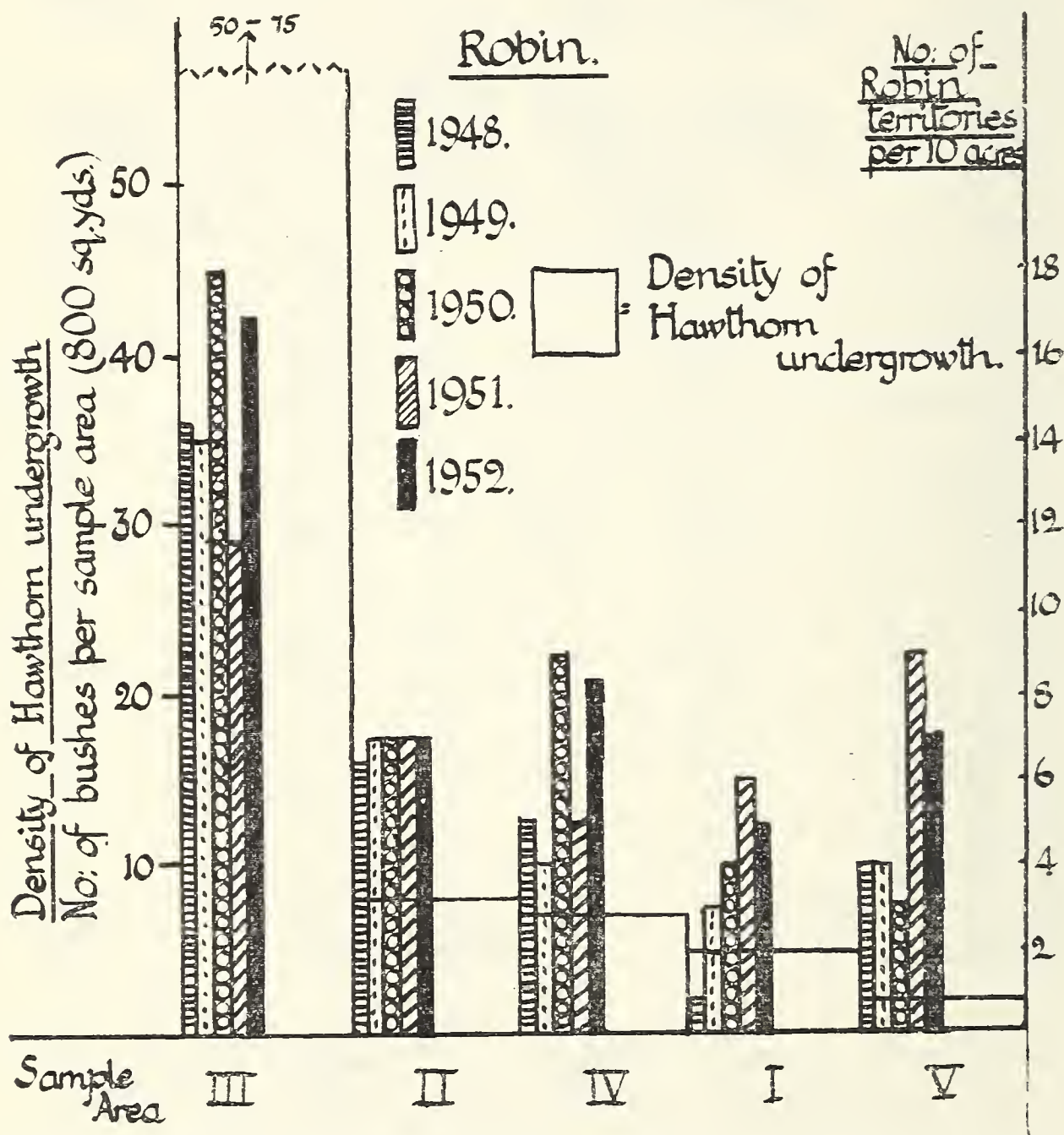


Fig. 5. Diagram of the density of territories of singing male *Robins* in relation to the density of Hawthorn undergrowth (1948-52).

Figure 5 indicates the results, for the years 1948 to 1952, of a comparison of *Robin* territories with the density of Hawthorn undergrowth. The Birch-Hazel area (VI), which is only one acre in size, has been omitted from the figure (5), as it is considered too small a part of the wood. It will be seen that the general conclusions arrived at in the previous paper, have been confirmed. These investigations thus indicate that the density of Robin territories is greater where there is thicker hawthorn undergrowth. Robin territories vary from 18 per 10 acres in dense hawthorn areas (more than 50 bushes per 800 square yard sample) down to 3 or 4 per 10 acres in rather open areas of woodland (under 5 hawthorn bushes per 800 square yards). Thus the presence of hawthorn undergrowth may make a difference of perhaps 6 times to the number of Robin territories in an area. This relationship (of Robins with hawthorns in woods) has been noticed before. In their study of Breckland conifer forests Lack and Lack (1951) mention that the Robin is perhaps better classified as a bird of tall scrub, and they remark that the occasional thorn tree often brings an additional Robin.

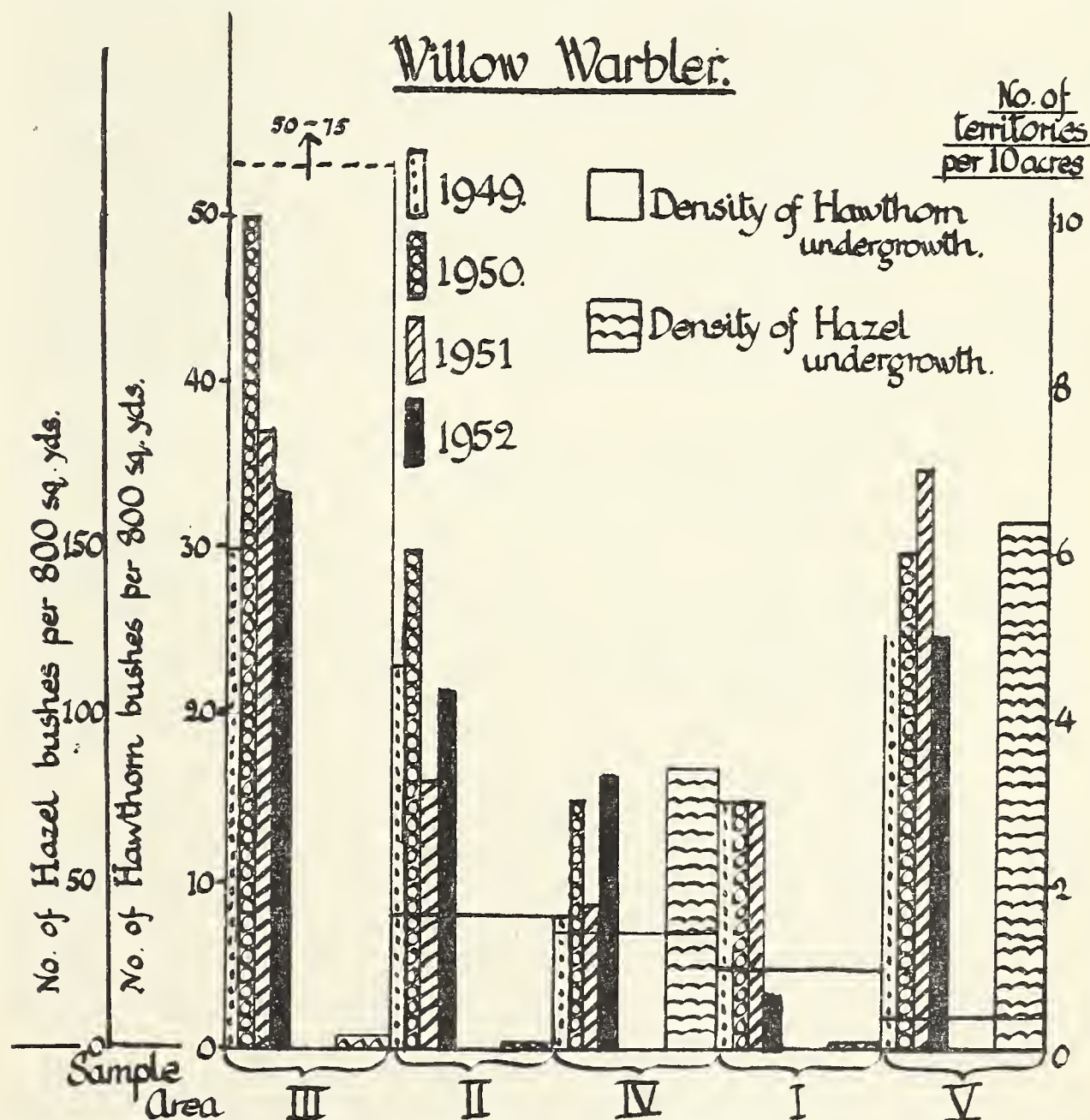


Fig. 6. Diagram of the density of territories of singing male Willow Warblers in relation to the density of the Hawthorn and the Hazel scrub (1949-1952).

Lack (1948) also draws attention to the marked preference of Robins for the wood edge, as compared with the interior of the forest. He describes the main requirements for this species: some thick cover in which to escape from enemies, some open ground over which to feed and some moderately tall trees from which to sing its territorial song. As may be seen from figure 1 in the previous paper on Eastern Wood, the areas of Dense Hawthorn (III) are small patches or elongated strips, and the Robin territories almost always include some of the more open parts of the woodland adjacent, or abut on to a ride or clearing.

In previous work no certain relationship had been found between the hawthorn shrubbery and *Willow Warbler* territories. If, however, the Hazel undergrowth is also considered, there appears to be a connection between the density of the territories and that of the secondary growth. Figure 6 shows diagrammatically the number of Willow Warbler territories compared with the hawthorn and hazel undergrowth for each area (except VI) for the years 1949 to 1952. The results suggest that Willow Warbler territories are more densely packed where there is more hawthorn undergrowth, and less where the hawthorn is thinner; but that if the hazel undergrowth increases, there may be more Willow Warbler territories, despite the sparseness of the hawthorn.

It must be stressed that in this work the size of the areas and the number of birds involved are small. Therefore significance should only be attached to relatively large differences and where they persist from year to year. Other factors may perhaps also influence the size of territories. For instance Southern and Morley (1950) found in their Marsh Tit territories, which varied from 1 to 16 acres in size (average 6 acres), that well-established males usually claimed larger territories than new arrivals.

5. *The Volume Output of Song and the seasonal variation in numbers of some of the species.*

Method. In the last 3 or 4 years an attempt has been made to measure the variation in volume output of the song of a number of species during the year. At each visit the number of birds in song in Eastern Wood is recorded. The results are shown diagrammatically for each year separately for 7 species. The counts were made during two hours in the morning between 10 a.m. and 1 p.m. G.M.T., except in a few instances when they were made during the afternoon (1 p.m. to 4 p.m.). The afternoon counts are indicated differently in the diagrams. The area was covered in about the same time on each occasion. Each upright on the diagrams represent one count. In addition the total number of birds of that species, observed in the wood during the count of songsters, and including both sexes, is recorded graphically for comparison. The date on which fully fledged young were first observed in the wood, is also indicated.

It should be mentioned that these observations were made at different times in relation to sunrise throughout the year, and this introduces a source of error. The records will therefore be made later after sunrise in the summer months than during the winter. Most birds sing more

in the early hours of the day, than towards the middle, and the main bulk of bird song occurs during April, May and June. Thus the volume of song recorded in the breeding season will be less than the maximum for that time of year. On the other hand the autumn and winter song recorded, although also less than the maximum for those seasons, will be nearer to it than will the spring song to the maximum for the spring. Song in July, August and September is usually low volume output but may be relatively reduced by this source of error. The important point to note is that this error will tend to reduce the volume difference for the seasons, and that differences when they are demonstrated will presumably be valid.

The volume of song has been shown to vary a great deal with the stage of nesting of the pair, and also whether the male is mated or not. A knowledge of these facts is necessary for the full appreciation of the seasonal fluctuation of bird song. However by counting as many birds singing as possible it is hoped to reduce the error due to the lack of this information.

A comparison is made in each species with the work of P. R. Cox (1944). The charts based on his paper are placed below those referring to Eastern Wood. He made 12 counts of the numbers of birds singing in every 10 day period. Half were in the morning (8 a.m.) and half in the evening (6 p.m.). They were thus made at a time which was not fixed in relation to sunrise and in this respect his results were comparable with those from Eastern Wood. From one to fifty birds were recorded on each count. The area studied was in Surrey and included a wood and downland; some of the latter was cultivated, broken up by coppices and fringed with the gardens of houses. His charts are based on the average of 2 years. Each upright represents the results of 24 observations. The curves each year were similar, although 1942 started with a hard winter and 1943 with a mild spring. He found that only one type of weather, i.e. snow, made any great difference to the numbers of birds singing. His observations were confined to the period February to October.

Thus the seasonal variation in song volume of certain birds in an oakwood only (Eastern Wood) is compared with the variation in an area including more open country, i.e. downland gardens and hedgerows as well as woodland (Cox).

RESULTS.

(a) *Robin*. Figure 7 indicates the variation in both volume output of song and in the population of the Robin in the years 1949 to 1952. The following points may be noted. The volume of song rises to a high level in April and May and then decreases in June, when fully fledged young begin to be in evidence; until in July and early August the song is almost absent. There is a marked revival of singing in late August or September and October, when the volume may become nearly as much as during the spring. Song is reduced again in November and December and increases gradually in January and February. Comparison of the charts suggests that the volume of song usually increases

later in woodland (i.e. during March in Eastern Wood) than in the more open habitats (Cox) where the volume seems at least as great in February as in April. Again in the more open habitats (Cox) the decrease in song occurred during April, that is a month earlier than in the woodland (Eastern Wood). Some observations made during 1950, on the more open plains of Bookham Common (mainly rough grass and scattered shrubs), also indicated a waning of Robin song during April,

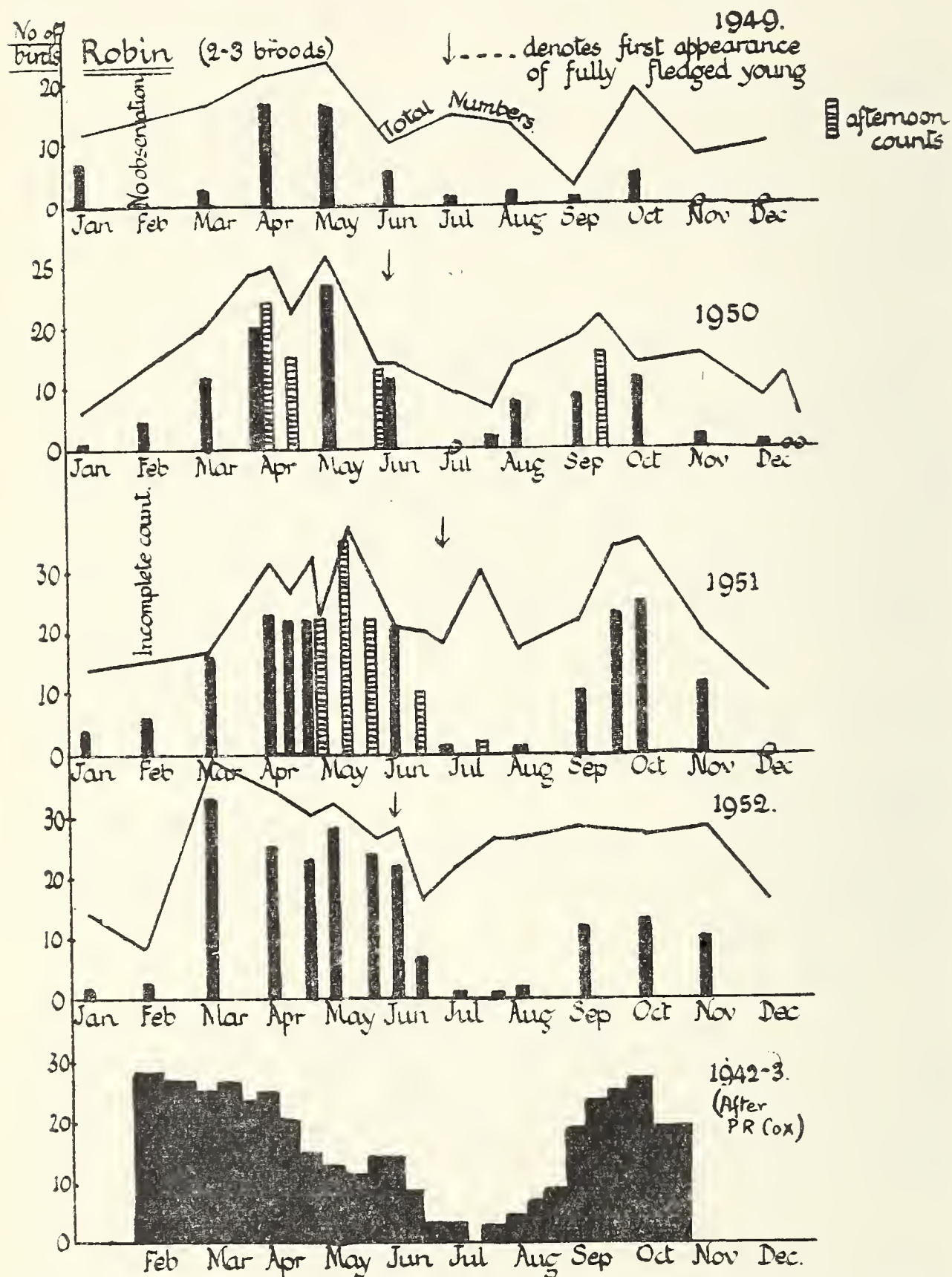


Fig. 7. The volume output of Robin song (1949-1952) and the variation in total numbers of Robins throughout the year in Eastern Wood.

that is earlier than it occurred in Eastern Wood in the *same* year. Figure 7 indicates a decrease of the Robin population in winter and an increase from March or April onwards in Eastern Wood. These findings suggest that Robins are still returning to the woods in March and that the Robin breeds later in the spring in dense woodland than in more open habitats. Lack (1948) found that the males and females continued to arrive and take up territories during April and May in Wytham Wood near Oxford, in 1946 and 1947. He noticed that con-

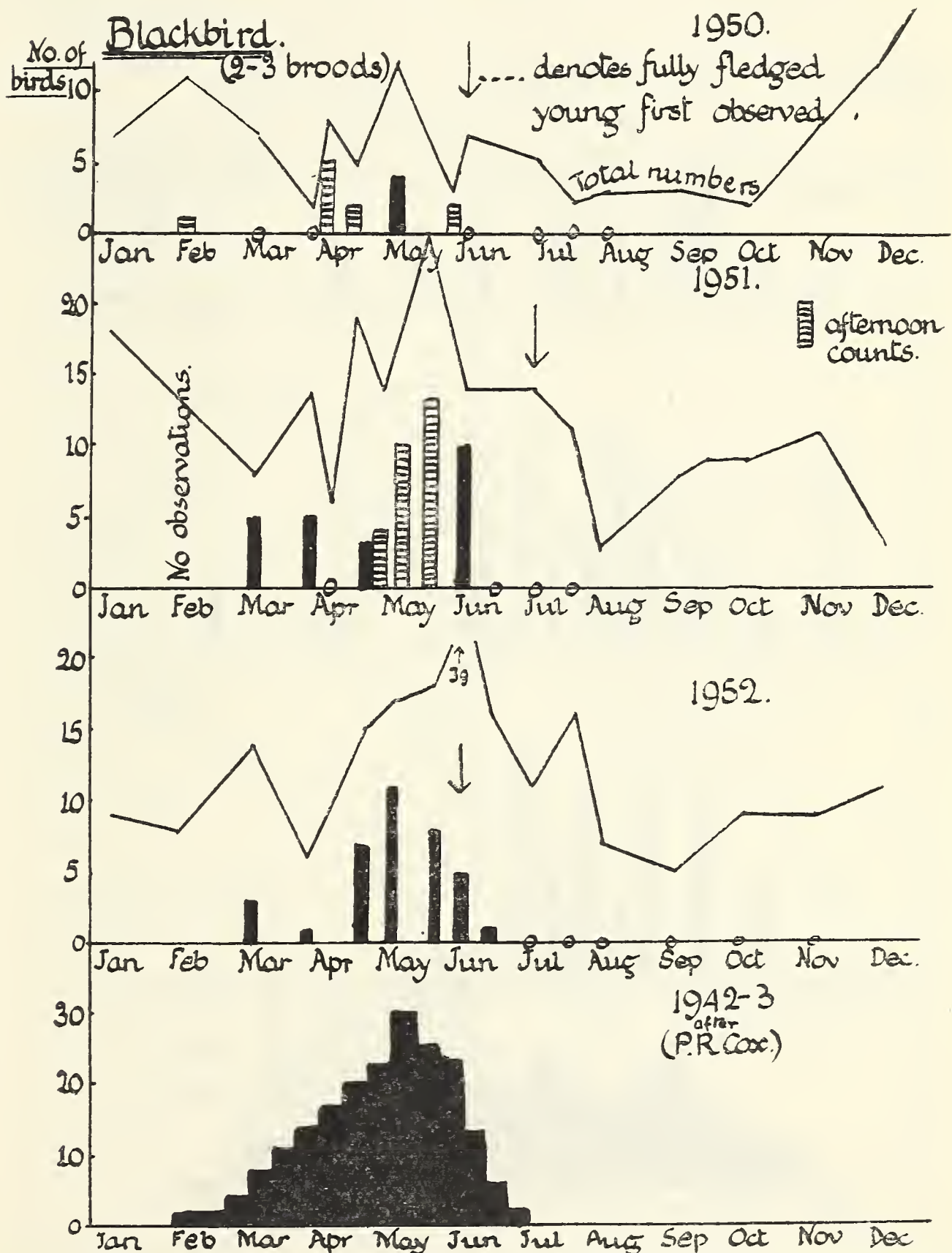


Fig. 8. The volume output of Blackbird song (1950-1952) and the variation in total numbers of Blackbirds throughout the year.

ditions became suitable for breeding in this wood, *later* than in the gardens and hedgerows of adjacent villages.

Substantial numbers of Robins were recorded during July and August when the volume of song was minimal. Nicholson (1951) points out that in June, territory-holding disintegrates and that the onset of the moult makes Robins exceptionally secretive and hard to find. It may therefore be some indication of the thoroughness of the census, that many Robins were found at this time in all the years except 1950.

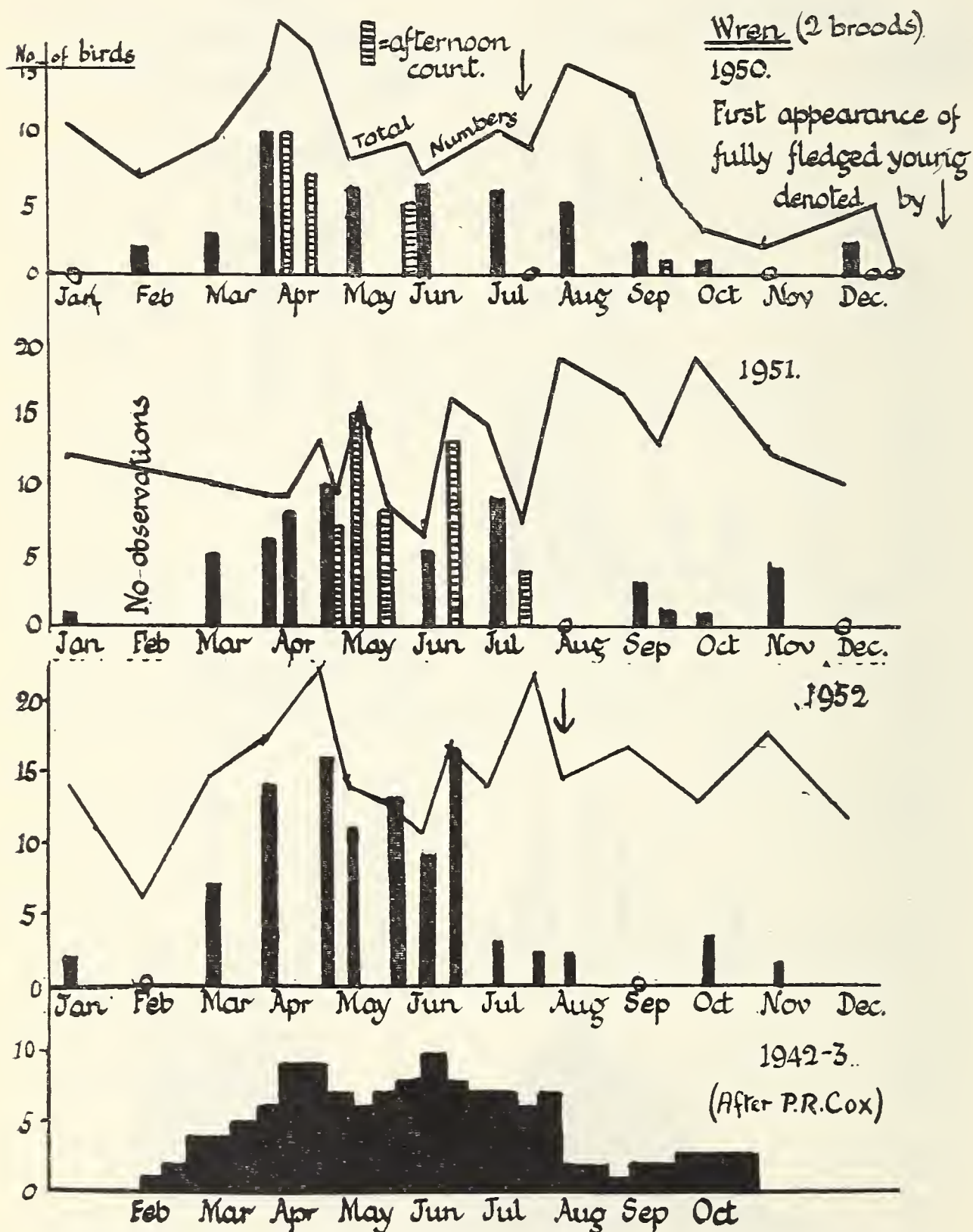


Fig. 9. The volume output of Wren song (1950-1952) and the variation in the numbers of Wrens throughout the year.

(b) *Blackbird*. In figure 8 is shown the variation in volume of song throughout the years 1950 to 1952. The song volume rises gradually to a peak which occurs during May. It decreases fairly abruptly in June, when the young birds appear in numbers. There seems to have been a decrease in the numbers of Blackbirds in the wood during August in each of the 3 years.

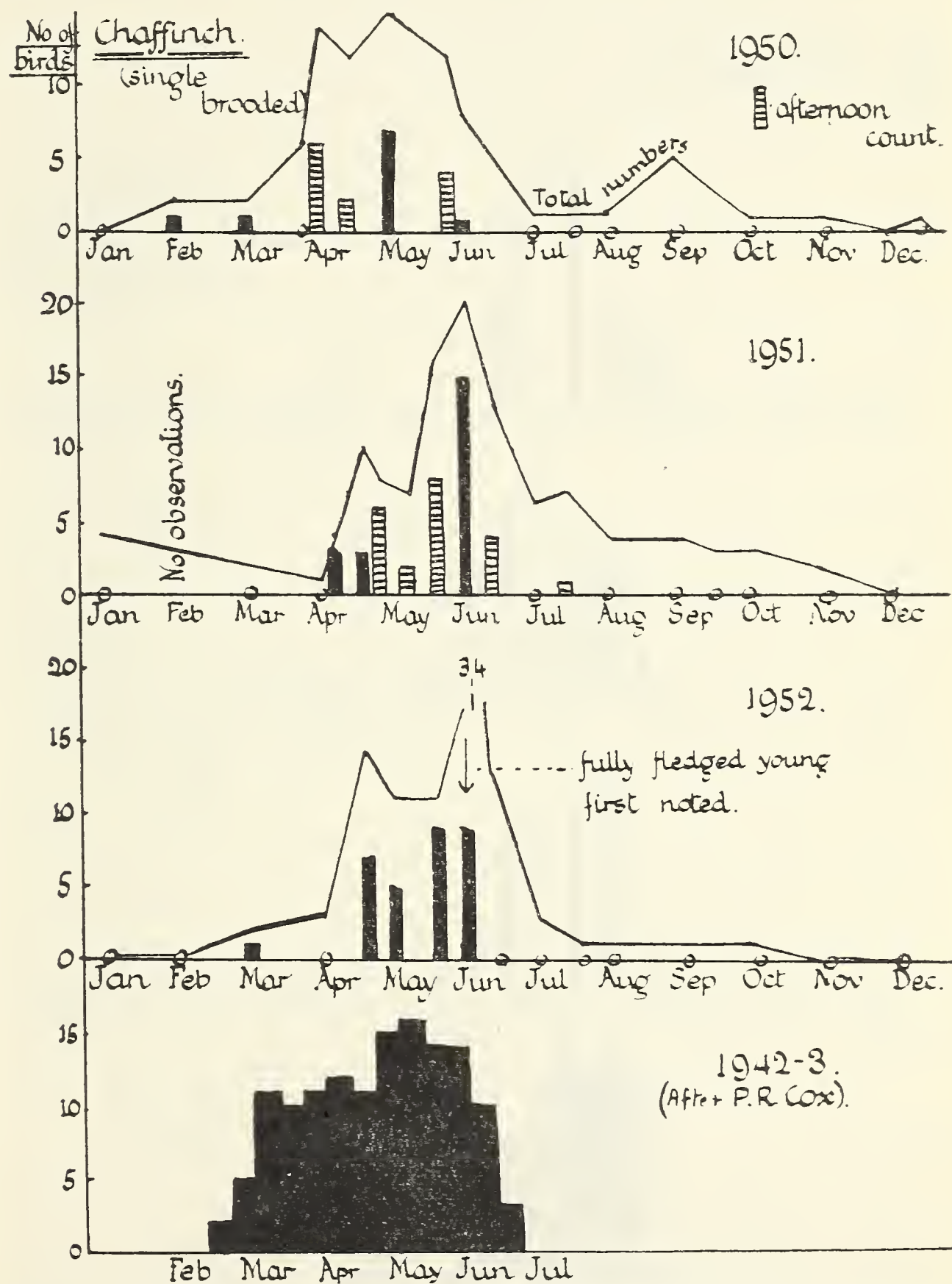


Fig. 10. The volume output of Chaffinch song (1950-1952) and the variation in total numbers of Chaffinches throughout the year.

(c) *Wren*. The variation in song volume and in population is indicated in figure 9 for the years 1950 to 1952. The volume of song remains high from April to June, with perhaps a tendency for a peak in April and a second in June. A small amount of song may be heard throughout the rest of the year although there is a conspicuous decrease in August and September. The autumn revival of song although present, is not such a striking feature as in the case of the Robin. The general pat-

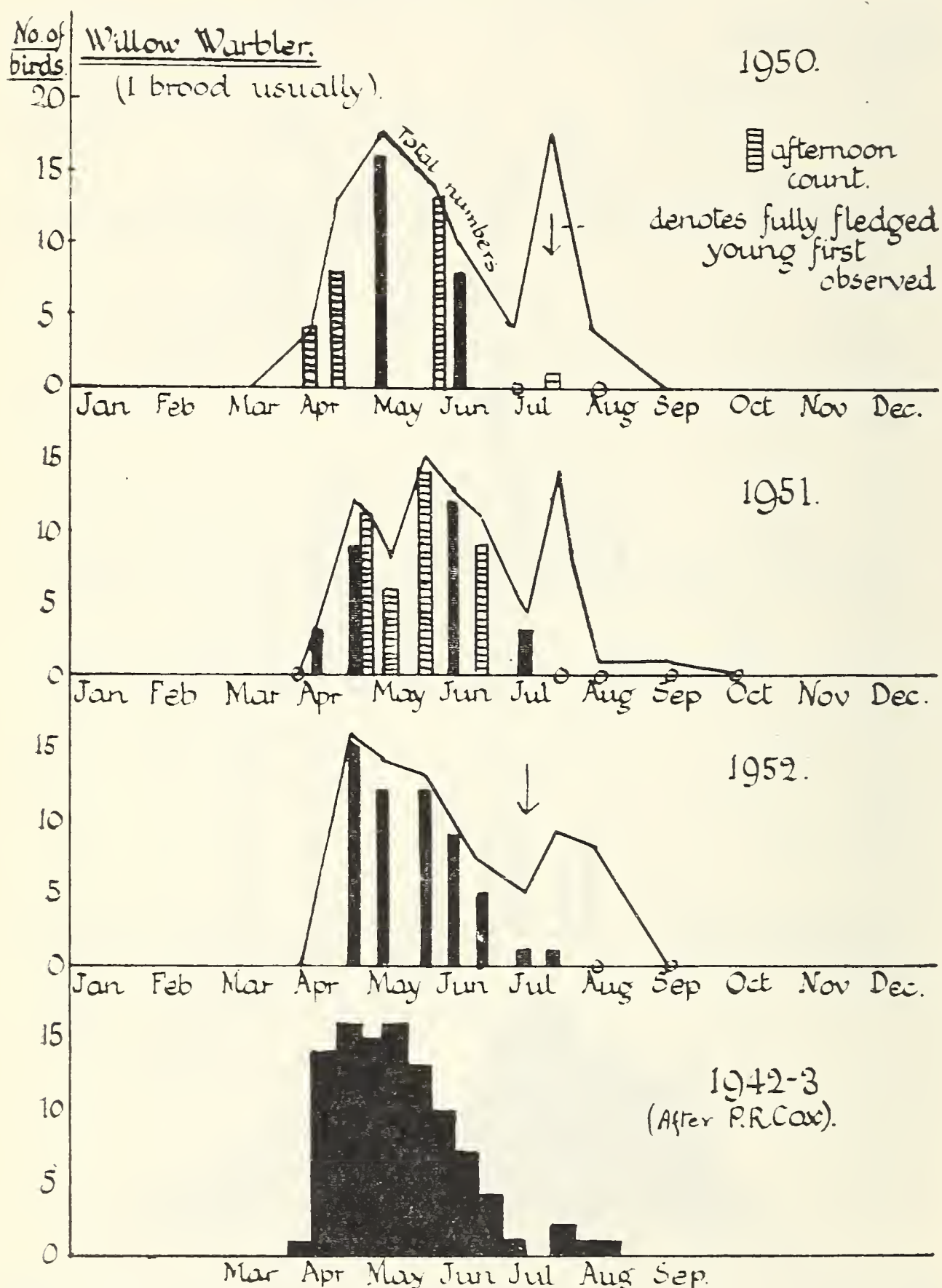


Fig. 11. The volume output of Willow Warbler song (1950-1952) and the variation in numbers of Willow Warblers throughout the year.

tern of the song curve in woodland is apparently similar to that of Cox for the other habitats. The total population of Wrens throughout the year probably showed little significant variation, except a decrease in the autumn of 1950.

(d) *Chaffinch*. The variation in song volume and in population is shown in figure 10 for the years 1950 to 1952. In Eastern Wood there is very little song until mid-April. As can be seen from the chart, this is because most of the Chaffinches do not arrive in the wood until then. Only an occasional bird will take up its territory and sing before. This finding contrasts with Cox's results for more open habitats, where song is in good volume by the middle of March. The Handbook (Witherby 1941) indicates regular song from early February onwards. From general observations it seems as if Chaffinches occupy their territories in gardens earlier in the year. At this time (February and March) those birds which will breed in the woodland are presumably still in flocks in the fields.

The song reaches its peak during May or early June and then decreases rapidly to nothing in late June as was found also by Cox. The song period in dense woodland is therefore shortened. The total population is probably maximal in June when the young ones are freshly fledged. After this the numbers decrease rapidly to a third of their total, the family parties leaving the woodland in July. There are only occasional birds present during the rest of the year. Lack and Lack (1951) found that by August all the Chaffinches had left the plantations of Scots and also of Corsican Pine, which they were studying in Breckland; and they found that the birds remained absent during the winter months. Yapp (personal communication) finds that Chaffinches leave oakwoods in the Lake District and Wyre Forest after the breeding season.

(e) *Willow Warbler*. The volume output of song and the fluctuations of the population throughout the years 1950 to 1952 are shown in figure 11. This is an example of the type of curve produced by a summer visitor. The birds arrive during the early part of April and the volume of song rapidly increases to a maximum during May. The volume remains high during June but falls rapidly at the end of that month or at the beginning of July. A few birds continue to sing during July. It is interesting to note the drop in numbers of birds observed in early July and the rise in the total later in the month. When the birds stop singing they become much less conspicuous. When however the young ones become fully fledged the birds call more frequently and hence they are more conspicuous and also, doubtless, more numerous. The birds leave the woodland during August and early September.

(f) *Blue Tit*. The volume output of song for the years 1949 to 1952 is shown in figure 12. The song begins to be noticeable in January but increases rather abruptly in March, the tit flocks having by then disbanded. The highest peak of song occurs at the end of April and early May. The output decreases markedly in June, when the young birds begin to become conspicuous in family parties. The tit flocks begin to form in July but a few birds continue singing during July and August.

Blue Tits have been heard singing in the flocks during August, November and January, but it is not yet clear whether these are resident birds which have only temporarily become "caught up" in a passing flock.

(g) *Great Tit*. Figure 13 shows the output of song of the Great Tit for the years 1949 to 1952. The song starts in January and rises to a peak in April and May. It then decreases rapidly and seems to be over by the end of June or beginning of July, when the young birds roam about in family parties.

6. *A Summary of the Main Population Changes in Eastern Wood throughout the Year.* (See figure 14).

It is convenient to start in February or early March as at this time the population of birds in Eastern Wood is at its lowest. Presumably

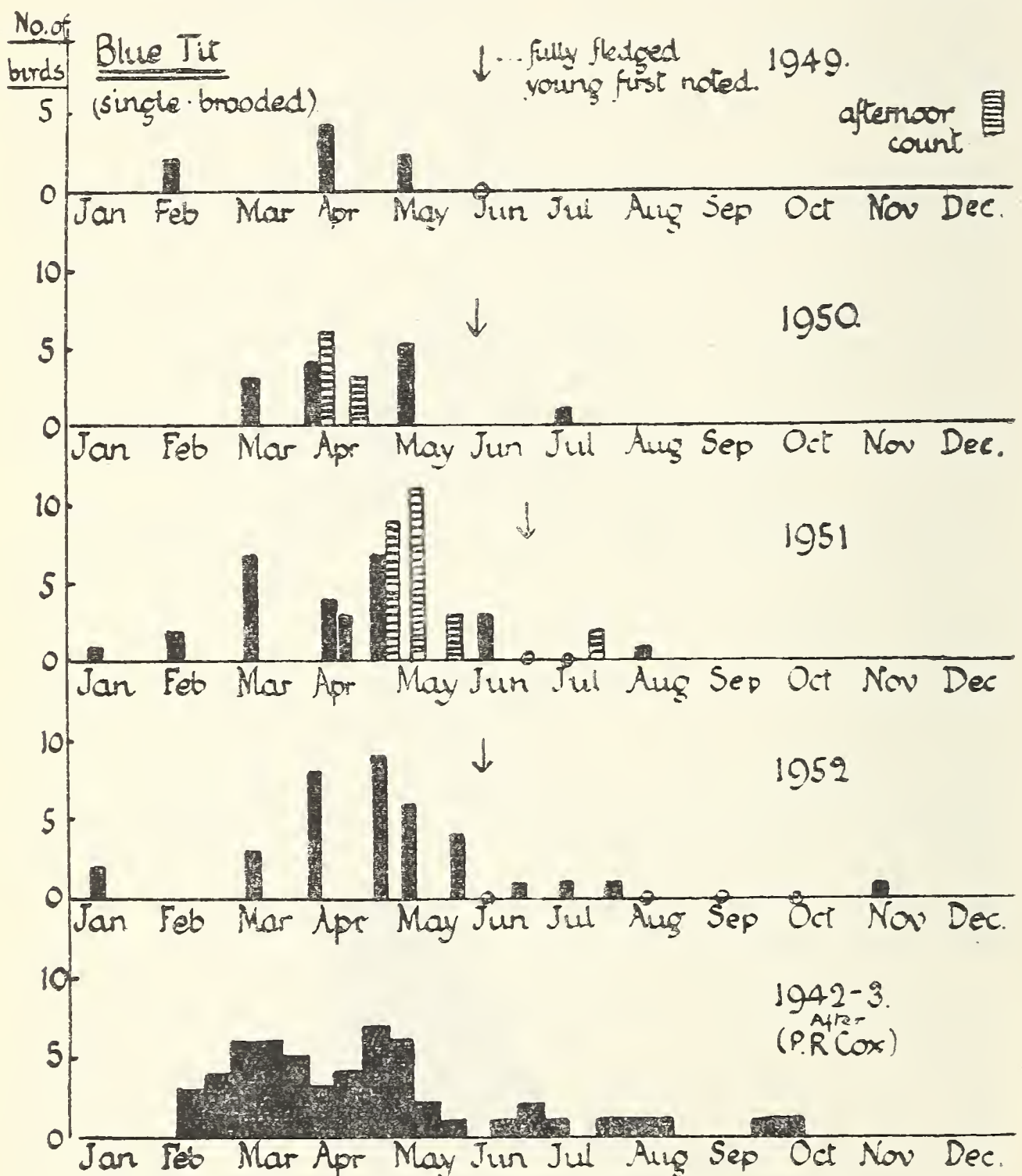


Fig. 12. The volume output of Blue Tit song (1949-1952).

the winter has had its effect on the survival of the previous year's youngsters, and the summer visitors have not yet arrived. The winter flocks of tits are breaking up, and are usually disbanded by March. Some of the tits leave the wood at this time.

Early in April the numbers of birds increases, and this increase becomes considerably more marked towards the end of the month. Warblers, especially Willow Warblers arrive. Chaffinches enter the wood and take up their territories. In May there is a large bird population and many of the birds are then very conspicuous. Young Starlings leave their nests during the latter part of May and then enter the wood in considerable numbers to feed on the *Tortrix* caterpillars on the oaks. Although observations have been few, they suggest that the Starlings soon leave again, not remaining more than a week or so, and that they do not occur in this particular wood during the rest of the year. They do not breed in Eastern Wood. Jackdaws have also been observed to come into the oak canopy to feed on the *Tortrix* caterpillars during May. They are seldom observed feeding in the wood at other seasons.

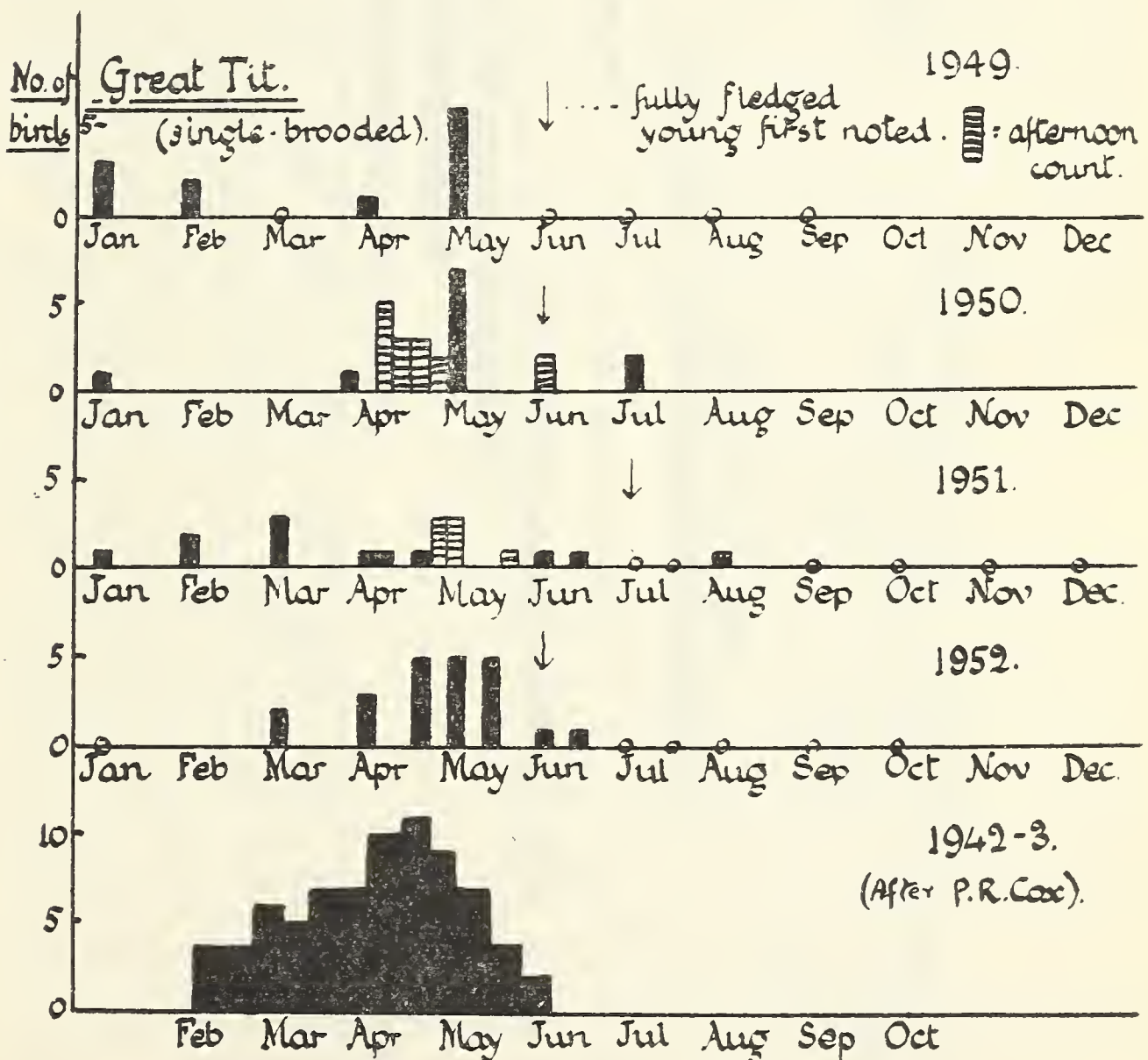


Fig. 13. The volume output of Great Tit song (1949-1952).

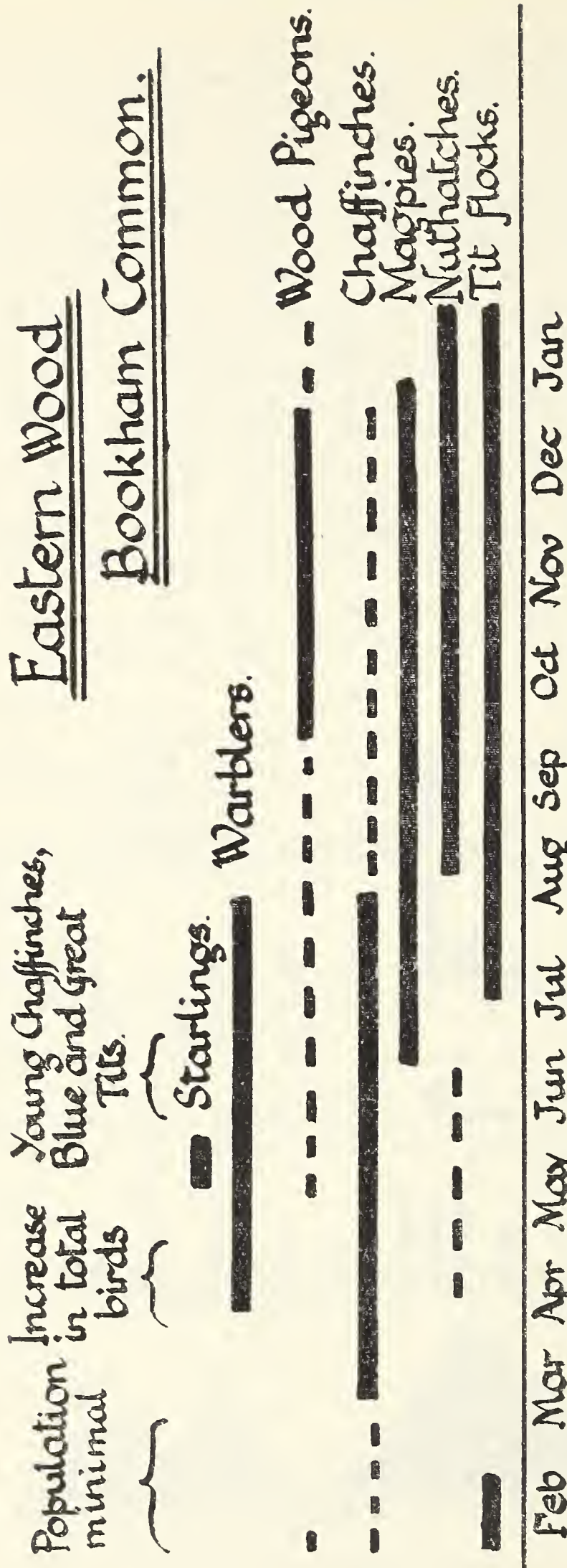


Fig. 14. A simplified diagram showing the relationship in time of some of the main population changes in Eastern Wood. This is based on observations made over 5 years (1948-1952). It is not drawn to quantitative scale.

In June young birds begin to make their appearance in numbers. The family parties of young tits become a familiar sight and juvenile Chaffinches are common. The numbers of Blackbirds are at their maximum in this month. Magpies which apparently do not breed there, begin to enter Eastern Wood now (presumably at the end of their nesting season).

In July the young Willow Warblers emerge; the Chaffinches begin to leave the wood and the family parties of Tits band themselves together to form flocks of several species.

During August Long-tailed Tits become more common in the tit flocks. The breeding population of this species in Eastern Wood is unlikely to be more than 2 pairs as a rule. There are by now few Chaffinches left.

September sees the earliest Wood Pigeons arrive. They are scarce (1 or 2 pairs) in the breeding season. Nuthatches, which do not usually remain in Eastern Wood to breed, now come into the area and are to be seen feeding on the Hazel nuts during this and the next two or three months.

In October the tits are grouped together in parties of 20 to 40 strong and wander about over a larger area of the woodland and may or may not be included in the counts for Eastern Wood. The population figures may therefore be very variable during this end of the year. The numbers of Great, Blue and Long-tailed Tits are often considerably increased by the immigrant flocks.

By November the Chaffinches have almost disappeared. The total number of birds tends however to be highest in this month and this is due mainly to the flocks of tits and Wood Pigeons. The latter are present in their largest quantity in December and usually disappear in January, although in 1952 flocks were still present in early April.

In January the Magpies mainly leave the wood, presumably to take up their territories in the more open areas of the Common.

Summary.

1. The survey of the birds of Eastern Wood, a sample of the oak-woods of Bookham Common, Surrey, has been continued.

2. The number of "spring" territories of the Robin decreased in 1947 and has increased since. There were apparently fewer Robin territories in the autumn than in the spring. Blackbird territories have shown an increase in number in the last 4 years.

3. The main fluctuations in the total bird population occurring during the year, and previously described, have been confirmed. Observations suggest that there was an increase in the population during April and May, and a further increase in July. During the autumn and winter there were more marked fluctuations.

4. During 1951 and 1952 the population in the breeding season was probably between 130 and 200 birds or 32 to 50 birds per 10 acres. The winter population varied between 80 and 150 birds or 20 to 38 birds per 10 acres, and was apparently greater than in the previous two years.

5. During 1951 and 1952 the population of titmice varied between 10 and 140 birds during the winter. Some of the tits leave Eastern Wood during February. In the breeding season during the years 1949, 1950 and 1951 the number of tits was between 20 and 40 birds. There is some indication that the number was greater than this in the spring of 1952. The tit flocks begin to form in June or July and are composed largely of young birds.

6. Young Blue and Great Tits appear at about the same time, and the numbers of the two species increase after this. Whereas the Blue Tits increase markedly in numbers in late summer and winter, the Great Tit population does not increase further. Thus as far as the flocks are concerned although the Great Tit is conspicuous in them in June, July and August, the Blue Tits come to predominate by a large margin later in the year. The numbers of Long-tailed Tits, of which there are only one or two pairs in the breeding season, are greatly augmented by immigrant flocks during the late summer and winter.

7. Robin territories may be as much as six times more densely packed together where the hawthorn undergrowth is thick. The number of Willow Warbler territories is increased in the presence of either hawthorn or hazel scrub.

8. The seasonal variation in volume of song for certain species in Eastern Wood is compared with that already obtained by Cox in more open habitats. Robin song volume increased later during the spring and decreased later during the summer in dense woodland than in the more open habitats. Most of the Chaffinches entered Eastern Wood during late March or April. Hence the spring song was delayed. The Chaffinches largely left Eastern Wood during July.

9. The main population changes in Eastern Wood during the year are summarised.

Acknowledgments.

It is a pleasure to thank all those members of the Ecology Section who have assisted in this survey; without their help nothing could have been achieved. Miss E. M. Hillman has drawn all the figures for this paper and helped with the tables, and has also given much valuable advice. Various members, especially Miss E. M. Hillman and S. H. Chalke have made extra counts, in addition to a great many regular ones. S. Cramp and W. B. Yapp have both given much helpful advice. In addition the following members have assisted with the counts:—T. L. Bartlett, Lt.-Col. C. J. F. Bensley, E. A. Brown, Miss E. H. Burt, B. Burton, C. P. Castell, F. C. Chandler, Miss J. Collins, P. W. E. Currie, Miss J. Darlington, D. H. Edwards, E. Elborn, D. V. Freshwater, J. D. Hillaby, Mr. De Jonge, Miss M. E. Kennedy, O. Macinder, L. Parmenter, D. C. Pegram, Miss D. A. Rook, Miss V. Ruffles, D. Smart, B. Stoller, J. D. Woodley. Thanks are also due to a number of other members who assisted with at least one count. We are grateful to Mr. P. R. Cox and the Editors and Publishers of *British Birds* (H. F. and G. Witherby) for permission to make use of the diagrams of the seasonal output of bird song.

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Errata. It should be pointed out that there were two errors in the previous paper "The Bird Population of an Oakwood in Surrey," *London Naturalist*, 1950. In Table I, on page 59, the numbers of the Samples V and VI should be interchanged. Thus the fifth sample listed refers to sample VI (area of 1 acre) and the sixth to sample V (area of 5 acres). In Table II, on page 63, in the column referring to July 10, 1949, the total number of tits and tits not in flocks should both read 40, not 30.

The Climate, 1952.

By H. HAWKINS.

(Observed at 119 Beresford Road, Chingford).

GENERAL OBSERVATIONS.

ONCE again the weather generally has been disappointing, especially to holidaymakers. One has come to expect that weather in this country shall be changeable and that no two years are ever alike, but it is only seldom that so many records are broken as in 1952.

January was relatively mild, with five days registering maximum temperature of 50 degrees or over. It was the sunniest January on record. February was dry and not particularly cold. March was mainly mild with maximum temperatures up to 60 degrees, but there was a severe snowstorm at the end of the month—the depth at Chingford being 6-9 inches. April was sunny and temperatures over the Easter week-end reached 70 degrees. May was generally warm, the maximum temperature being 84 degrees. June was changeable, the Whitsun week-end being unsettled, but at the end of the month the highest temperatures of the year were recorded. July was very dry with an absolute drought from 11th-31st. August rain was above average and it was a disappointing month for holidaymakers. August Bank Holiday was very unsettled, being cloudy and showery all day. The whole summer disappointed by the very few really warm days. September was unusually cold generally

Month.	TEMPERATURE.										RAIN.			FOG OR GALES, THUNDER, MIST.							
	BAROMETER.			Ave.				GRASS			Amt. in Inches.	No. of Rain Days.	No. of Wet Days.								
	Max.	Min.	Ave.	Daily		Max.	NIGHT MINIMUM.														
				Max.	Min.		Max.	Min.	Ave.												
Jan.	30.60	29.20	29.91	53	21	43.03	33.55	38.29	9.48	32	45	15	29.58	1.67	19	11	5	—	1		
Feb.	30.70	29.20	30.16	54	25	45.62	32.10	38.86	13.52	29	38	19	27.41	0.78	11	7	—	—	3		
Mar.	30.30	29.35	29.87	60	28	50.80	38.55	44.67	12.25	32	49	25	35.39	2.86	21	12	—	—	3		
Apr.	30.40	29.30	29.99	76	28	60.70	41.70	51.20	19.00	48	46	23	38.18	1.15	13	9	—	—	—		
May	30.45	29.30	29.81	84	39	68.48	47.77	58.13	20.71	45	54	36	45.29	1.54	13	7	—	3	—		
June	30.35	29.60	29.95	90	39	71.93	50.76	61.34	21.17	51	58	38	48.10	1.54	13	8	2	2	—		
July	30.30	29.70	29.93	88	47	75.26	55.42	65.34	19.84	41	62	42	52.16	0.64	4	3	1	—	—		
Aug.	30.15	29.35	29.77	79	47	72.19	55.45	63.82	16.74	32	62	44	55.22	2.91	16	10	—	5	—		
Sept.	30.35	29.15	29.86	75	35	61.93	45.80	53.86	16.13	40	51	30	42.40	3.26	17	11	1	1	—		
Oct.	30.25	29.05	29.82	62	30	56.16	42.58	49.37	13.58	32	54	25	38.48	2.39	16	12	2	2	—		
Nov.	30.25	29.35	29.89	55	20	45.10	34.03	39.56	11.07	35	47	15	29.89	3.77	17	12	1	—	3		
Dec.	30.60	29.05	29.88	52	22	41.84	32.74	37.29	9.10	30	42	16	29.48	2.19	21	14	—	—	6		
	Totals										24.70	181	116	15	13	16	15	13	16

with winds mainly from a northerly direction, and rainfall was much in excess. October was about average, but November was persistently cold and wet. It was the coldest November since 1925. December will be remembered for its fogs, the worst for many years. Taken as a whole, sunshine was above average, but the summer lacked real warmth.

Botanical Records for 1952.

Compiled by J. EDWARD LOUSLEY.

THE weather in the London Area in 1952 was not particularly favourable to botanical activities. Snowfall and very cold conditions at the end of March retarded spring flowers, but April and May were fairly warm and sunny. During June and July, rainfall was much less than average and, although there were few really hot days, the soil became so dry that many of the later plants were in poor condition. Rubbish-tip aliens were particularly disappointing as the rain arrived too late to permit germination. An exceptionally cold spell in mid-September destroyed a few of the more tender species but really hard weather did not set in until late so that botanising could be continued with profit until the end of October.

Records were sent in by a somewhat larger number of contributors and considerable progress was made towards filling in gaps in the *Hand List of the Plants of the London Area*, now in course of publication. Most of the new records will appear in subsequent parts of the *Hand List* and only a selection of those of special interest can be included here. These are set out, as in previous years, under the Watsonian vice-counties concerned.

V.-c. 16, WEST KENT.

The outstanding contribution to our records for this part of our Area during the year was a manuscript sent by H. M. Pratt giving localities for plants observed in the neighbourhood of Dartford from 1948 to 1951. This, with various supplements for 1952, includes some hundreds of records, and will be most valuable in filling gaps in the distribution of many species.

Mrs. L. M. P. Small discovered *Cyperus longus* L. in plenty near Westerham. The locality cannot be very far from the field at Hever (outside the Area) where Galingale was shown to me by E. C. Wallace in 1933 growing under conditions which suggested that it might have been deliberately introduced. Also near Westerham, though just outside our Area, Mrs. Small found *Parentucellia viscosa* (L.) Caruel. Several very interesting plants were seen on Abbey Wood Marshes on the L.N.H.S. excursion. These included a single plant of *Barbarea stricta* Andr. (confirmed by Mr. Kent) which was previously known only from near the Thames and the Cran. west of London, and also a single plant of *Bunias orientalis* L.

On Erith Marshes, H. T. Corke saw six plants of *Xanthium Strumarium* L. F. A. Swain records *Geranium rotundifolium* L. from a railway bank near Bexley and found *Digitalis lanata* Ehrh. still in some quantity in the gravelly field near Dartford where it was found in 1947. In September, Mrs. K. K. Law sent material of *Centaurea aspera* Willd. to the Natural History Museum for identification from a roadside verge in Kidbrooke Park Road, Blackheath. Although rather different from the form of the species which grows in Jersey, several members were pleased to have an opportunity of seeing this plant at Blackheath. T. R. Eagles sent me specimens of *Eleusine indica* (L.) Gaertn. from a chicken run at Bromley. This interesting grass is a widespread weed in the warmer parts of both hemispheres and was no doubt introduced with food for the poultry.

V.-c. 17, SURREY.

H. Britten's important discovery of *Cirsium eriophorum* (L.) Scop. var. *britannicum* (Petrak) Dr. from Old Coulsdon was published last year (*London Nat.*, **31**, 11). The plant grows on a steep chalky scrubby bank which is unlikely to have been cultivated and there is no reason to doubt that it is native. It appears to be suffering considerably from the competition of bushes which greatly restrict the available ground on the bank.

In June, C. T. Prime reported that he had seen six flowering spikes (and several barren shoots) of *Lilium Martagon* L. in a copse near Woodmansterne. This is probably the Turk's Cap Shaw from which material used for the plate in the *Supplement to English Botany* was sent in 1837 with the comment that the villagers had known it there as wild for half-a-century. Mr. H. J. Burkill tells me that he has seen it there but we had no very recent records. I visited the locality with H. Britten on July 13th and we found the wood very overrun by children from the housing estate which reaches to the edge. Several very tall trees of an old variety of garden Cherry in the wood were evidence of ancient orchard planting and Mr. Britten has drawn my attention to a paper in *Surrey Archeological Collections*, Volume 16, 1901, where Turk's-cap and other garden flowers are mentioned as seen in "Lord's Wood"—the possible site of the original Manor House of Woodmansterne. Although the wood is the subject of a Preservation Order, the extinction of *Lilium Martagon* in this locality, where it is known to have grown for some 165 years, is likely to be near.

A. E. Ellis during the year contributed about 150 records of Surrey plants, many of which had been determined by specialists on material preserved in the herbarium of Epsom College. His lists will be particularly valuable in connection with the accounts of critical groups such as *Ulmus*. Amongst many interesting records there are no less than three of the very rare *Galium Vaillantii* DC. which he collected at Ewell, Epsom College, and near Kingswood Station in 1944, 1939, and 1941 respectively. This year he found *Fumaria parviflora* Lam. growing with *F. officinalis* L. and *F. micrantha* Lag. in Epsom College field. As he has previously recorded *F. Vaillantii* Lois. and *F. micrantha* × *officinalis*

from the same field, this gives a total of four species and a hybrid from one locality. In July he sent me *Silene dichotoma* Ehrh. and *Berteroa incana* (L.) DC. from a fallow field at the foot of Pebblecombe Hill. The first was found by C. D. Orton, who collected *Prunella laciniata* L. in 1951 on the opposite side of the road, and the Crucifer was found by Mr. Ellis a few days later.

From Richmond Park, Mrs. L. M. P. Small records *Dianthus Armeria* L., which was determined by Dr. Melderis and seen *in situ* by Mrs. Welch. *Carex rostrata* Stokes was seen at Reigate Heath by R. A. Boniface, and *Galinsoga ciliata* (Rafn.) Blake from Alderstead Heath, near Chaldon, was sent by H. Britten. The Fullers' Teasel, *Dipsacus fullonum* L. ssp. *fullonum* is recorded by Miss B. M. C. Morgan from Earlswood cinder-tip. Although a little outside the boundary of our Area, it should be put on record that P. M. Newey sent a specimen of *Artemisia Verlotorum* Lam. from the Sheerwater Estate near Byfleet.

V.-c. 18, SOUTH ESSEX.

The most valuable contribution for this part of our Area came from J. Bedford. From Walthamstow Reservoir he collected *Hieracium prae-cox* Sch.-Bip., *H. lepidulum* Stenstr., *H. rigens* Jord., *H. vagum* Jord., and *H. maculatum* Sm. (all determined by P. D. Sell and Dr. C. West) and *Salvia verticillata* L. (det. D. H. Kent). A record of *Artemisia Verlotorum* Lam. from Dagenham in 1951 from N. Y. Sandwith is a useful addition to our knowledge of the distribution of this interesting and very late flowering plant. In June with B. T. Ward I was able to list a number of species and the most interesting of these were *Epilobium adenocaulon* Hausskn. at Loughton Station, *Peplis Portula* L. in High Wood by Ongar Park Wood, *Hottonia palustris* L. in a small pond in High Wood, and *Chaenorhynchus minor* (L.) Lange (*Linaria minor* (L.) Desf.) at Ongar Station.

V.-c. 19, NORTH ESSEX.

Records from this vice-county are again very few. R. M. Payne records *Saxifraga tridactylites* L. from a wall at Netteswell.

V.-c. 20, HERTS.

On the Ramblers' field meeting in August, Miss L. Johns recorded *Centaurea solstitialis* L.—St. Barnaby's Thistle—from a field at Hailey. and *Tragopogon porrifolius* L., Salsify, from a roadside there. R. A. Graham found *Hieracium virgultorum* Jord., in a lane near Northwood (in Herts.), which appears to be a "New County Record".

V.-c. 21, MIDDLESEX.

Fumaria Boraei Jord. on waste ground by the Thames at Chiswick. and *Barbarea stricta* Andrz. from Chiswick House grounds, are recorded by R. A. Boniface. On a bombed site in King Street, Hammersmith, N. Y. Sandwith found two fine plants of *Rapistrum perenne* (L.) All., and also the alien *Reseda lutea* L. var. *pulchella* J. Muell. which he suggests may be overlooked and less rare than supposed. Several mem-

bers joined the field meeting of the Botanical Society of the British Isles in September when the plants of interest observed included *Psoralea Americana* L. and *Tagetes minuta* L. on a rubbish-tip at Hanwell and *Amaranthus blitoides* S. Wats. on a tip at Greenford. Mr. Graham contributes a record of *Mentha* \times *gracilis* L., which is rare, from a rubbish-tip at Harefield.

To our records of Hawkweeds have been added *Hieracium exotericum* Jord. from the grounds of the Natural History Museum, South Kensington, determined by Dr. C. West on material collected by E. B. Bangerter, and also from Kensington Gardens near the Albert Memorial, collected by D. H. Kent in 1950. *Atropa Belladonna* L. was found by R. L. Bennet on a bombed site at Eaton Terrace, S.W.1. *Chenopodium hybridum* L. is recorded by H. C. Grigg from the Hanwell rubbish-tip.

The bombed sites in the City of London are still kept under regular observation. Miss M. A. R. S. Scholey found *Anthyllis Vulneraria* L. near Cripplegate and my own records include *Bunias orientalis* L. from Upper Thames Street. Dr. Melderis has identified *Hordeum murinum* L. ssp. *leporinum* (Link) A. & G. collected by Dr. A. Henson from bombed sites between the Tower of London and Billingsgate and also from The Highway, Shadwell. This alien from Southern Europe is usually a stouter plant than our native Wall Barley from which it may be distinguished by certain characters of the spikelets. It is easily overlooked and may be more common than supposed near docks and in similar places.

No records were received during the year from the part of v.-c. 24, Bucks., within our Area. We are grateful to the following for observations contributed during 1952:—E. B. Bangerter, J. Bedford, R. L. Bennet, R. A. Boniface, J. P. M. Brenan, H. Britten, K. E. Bull, T. G. Collett, F. M. Day, Dr. J. G. Dony, T. R. Eagles, A. E. Ellis, J. Farrand, R. A. Graham, H. C. Grigg, Dr. D. N. Harrison, Dr. A. Henson, Miss E. M. C. Isherwood, Miss L. Johns, Miss J. Jones, Mrs. K. K. Law, G. A. Matthews, Dr. A. Melderis, Miss B. M. C. Morgan, P. M. Newey, C. D. Orton, R. M. Payne, H. M. Pratt, Dr. C. T. Prime, N. Y. Sandwith, Miss M. A. R. Scholey, Mrs. L. M. P. Small, C. S. Smallcombe, F. A. Swain, Mrs. B. Welch, and Dr. D. P. Young.

Plant Galls in Surrey, 1952.

By M. NIBLETT, F.R.E.S.

I WAS prevented by illness from paying my usual number of visits to many localities in search of plant galls; twenty-two visits were made to thirteen localities.

HYMENOPTERA.

TENTHREDINIDAE:—*Pontania proxima* Lebel on *Salix fragilis*, and *P. bridgmanni* Cam. on *Salix atrocinerea* and *S. caprea* were fairly plentiful.

CYNIPIDAE:—In the majority of areas visited there was an exceptional scarcity of galls of *Neuroterus baccarum* L. on the Oaks; this was reflected in the autumn by a corresponding scarcity of galls of its alternate form *lenticularis* Oliv. Except in a very few areas galls of *Biorhiza pallida* Oliv. were found in considerable numbers, and they were much more plentiful than they have been for a number of years. *Andricus ostreus* Gir., *A. curvator* Htg., *Neuroterus albipes* Schnk. f. *laeviusculus* Schnk., and *N. numismalis* Oliv. were fairly plentiful; *Cynips folii* L. and *Andricus fecundator* Htg. were both seen in fair numbers but widely scattered. *A. albopunctata* Schlecht., *A. nudas* Adl. form *malpighii* Adl., *A. ramuli* L., *A. quadrilineatus* Htg., *Cynips longiventris* Htg., and form *substituta* Kinsey, and *C. folii* L. f. *taschenbergi* Schlecht. were definitely scarce. On *Quercus petraea*, *Neuroterus schlechtendali* Mayr and *Andricus glandulae* Schnk. f. *xanthopsis* Schlecht. were found in fair numbers.

Rose galls were far from plentiful. *Rhodites rosae* L., spiked galls of *R. dispar* Niblett, and smooth galls of *R. dispar* and/or *R. eglanteriae* Htg. were seen, and a few galls of *R. spinosissimae* Gir. on *Rosa canina* were found on Banstead Downs, a new locality.

On *Hypochoeris radicata* galls of *Aulacidea hypochoeridis* Kieff. and on *Potentilla erecta* galls of *Xestophanes brevitarsis* Thoms. were seen in fair numbers. On a *Rubus* sp. several galls of *Diastrophus rubi* Bché. were found on Bookham Common; this is a new locality. On *Nepeta glechoma* a few galls of *Liposthenes glechomae* L. were found, and on *Papaver rhoeas* those of *Aylax papaveris* Per. were fairly plentiful in several localities.

DIPTERA.

TRYPETIDAE:—On *Cirsium arvense* galls of *Urophora cardui* L. were fairly plentiful in many localities, on *C. vulgare* those of *U. stylata* F. were also seen in fair numbers, on *Centaurea nigra*, *U. jaceana* Her. and on *Pulicaria dysenterica* those of *Myopites blotii* Bréb. were also fairly plentiful.

CECIDOMYIIDAE:—Cecid galls were not seen in any great numbers. A few species were fairly plentiful, on *Crataegus monogyna* those of *Contarinia anthobia* F. Lw. were found in some numbers in two localities, on *Silaum silaus* *Kiefferia pimpinellae* F. Lw., and on *Daucus carota* *Lasioptera carophila* F. Lw. were both generally plentiful.

Other galls seen were, on *Betula verrucosus* *Plemeliella betulicola* Rübs., on *Crataegus monogyna* *Dasyneura crataegi* Winn. and *D. oxyacanthae* Rübs., on *Daucus carota* *Kiefferia pimpinellae* F. Lw., on *Fraxinus excelsior* *Dasyneura fraxini* Kieff., on *Galium verum* *Geocrypta galii* H. Lw., on *Helianthemum nummularium* *Contarinia helianthemis* Hardy, on *Hypochoeris radicata* *Contarinia hypochoeridis* Rübs., on *Ligustrum vulgare* *Placachela ligustri* Rübs., on *Populus tremula* *Harmandia globuli* Rübs., *H. loewi* Rübs., *Lasioptera populnea* Wachtl., and *Syndiplosis petioli* Kieff., on *Prunus spinosa* *Putoniella marsupialis* F. Lw., on *Quercus robur* *Macrodiplosis dryobia* F. Lw., on *Rosa canina* *Wachtliella rosarum* Hardy, on *Rubus* sp. *Dasyneura plicatrix* H. Lw.

on *Salix atrocinerea* *Rhabdophaga rosaria* L. and *R. salicis* Schnk., on *Sonchus arvensis* *Cystiphora sonchi* F. Lw., on *Stachys sylvatica* *Wachtliella stachydis* Br-W., on *Tamus communis* *Schizomyia tami* Kieff., on *Tragopogon pratense* *Contarinia tragoponis* Kieff., on *Ulmus glabra* *Janetiella lemeei* Kieff., on *Urtica dioica* *Dasyneura urticae* Perris, on *Veronica chamaedrys* *Jaapiella veronicae* Val., on *Viburnum lantana* *Contarinia lonicerearum* F. Lw. and *Phlyctidobia solmsi* Kieff.

AGROMYZIDAE:—On *Salix caprea* a few galls of *Melanagromyza schineri* Gir. were seen.

HOMOPTERA.

APHIDAE:—On *Artemisia vulgaris* *Cryptosiphum artemisiae* Pass. and on *Crataegus monogyna* *Aphis crataegi* Kalt. were both fairly plentiful.

PSYLLIDAE:—*Psyllopsis fraxini* L. on *Fraxinus excelsior* and *Trichochermes walkeri* Forst. were both generally plentiful as usual.

ERIOPHIDAE.

With a few exceptions the Mite galls listed were found to be generally fairly plentiful. On *Acer campestre* *Eriophyes macrochelus* Nal. and *E. macrorrhynchus* Nal., on *Acer pseudoplatanus* *E. pseudoplatani* Corti., on *Alnus glutinosa* *E. laevis inangulis* Nal., on *Betula pubescens* *E. rudis longisetosus* Nal., on *Centaurea scabiosa* *E. centaureae* Nal., on *Euonymus europaea* *E. convolvens* Nal., on *Juglans regia* *E. tristriatus erineae* Nal., on *Populus tremula* *E. dispar* Nal., on *Rubus* sp. *E. gibbosus* Nal., on *Prunus spinosa* *E. similis* Nal., on *Salix atrocinerea* *E. tetanothrix laevis* Nal., on *Salix fragilis* *E. triradiatus* Nal., on *Ulmus campestris* and *U. glabra* *E. ulmi* Nal., on *Viburnum lantana* *E. viburni* Nal.

FUNGI.

On *Crataegus monogyna* *Gymnosporangium clavariforme* Jacq., on *Rhamnus catharticus* *Puccinia coronifera* Kleb., on *Rosa canina* *Phragmidium subcorticium* Schrk., on *Tragopogon pratense* *Ustilago tragoponis* Wint., on *Populus tremula* *Taphrinia aurea* Fries.; all species were plentiful.

Reports on Temporary Geological Exposures in the Society's Area.

LONDON S.W.

L.N.H.S./T.S./50/52.

LONDON S.W.1.

WESTMINSTER TECHNICAL INSTITUTE, VINCENT SQUARE. Excavation for a new extension in the summer of 1951 showed a section in fine sand with clay partings overlain by made ground. The base of the excavation had been filled with concrete, the surface of which was 8 inches below ordnance datum. The whole exposure was dry, draining rapidly after

heavy rain. The sand is homogeneous, but clay partings, rarely exceeding 2 inches in thickness, are present. The deposits tend to become more argillaceous towards the top. Bands of black sand were noted. The beds dipped towards the S.S.E. at a low angle but this was probably false-bedding since some of the clay bands dipped more extremely than others. Only part of the excavation extended to a deeper level. The section observed has, for convenience, been recorded separately for the two levels and is as follows:—

Section in East Face. Shallow (Upper) Level.

	Feet.	Inches.
(Made Ground)		
Clay with sand partings	1	0
Fine Sand	0	7
Sandy Clay, tending laterally towards clay	2	0
Sand becoming marly upwards	0	3
Clay, very plastic	0	2½
Clayey Sand	1	7

Section in S.S.E. Corner. Deeper (Lower) Level.

	Feet.	Inches.
Sand	1	5
Sand and Clay Bands	0	5
Fine Sand	1	10
Sand with Clay partings	1	0
Sand, very slightly clayey	1	0
Sand with numerous Clay partings ...	1	1
Clay Band—well defined	0	2
Fine Sand	1	3
Sand. (Concealed below footings of foundations).		
Grading into Thames Ballast ...	4	9

The upper Sand of the Shallow level is clayey in the S.E., but has more the appearance of a brickearth in the S.W.
No fossils were found.

A. S. G. CURTIS.

LONDON W.

L.N.H.S./T.S./52/52. LONDON W.2.

QUEENSWAY, BAYSWATER. Excavations, Nov.-Dec. 1951, for drain connected to deep drain. Manhole-shaft 36 feet deep, on alignment of interrupted kerb at west side of Queensway about 85 yards south of entrance of Bayswater Station (Metropolitan line); thence excavation about 19 feet deep, by alternating trench and tunnel, westward along north side of short private side-road that separates Princess Court from Queen's Court.

Section: *Street level 82 feet above Newlyn datum.*

Made ground }
Gravel } about 9 feet thick.

Junction between gravel and clay at about 73 feet above Newlyn datum.

Clay, about 27 feet of its thickness penetrated where excavation deepest.

Bottom of deep manhole-shaft 46 feet above Newlyn datum.

For the thicknesses and levels I am indebted to the foreman on the site and especially to the Paddington Borough Surveyor.

London Clay of spoil-heaps bluish-grey and with occasional septarian nodules. Fossils scarce: the molluscs were collected one by one on different visits to the growing spoil-heaps, and not every visit was productive. In the following list of fossils the registration numbers of those now conserved in the Department of Geology of the British Museum are appended.

Fossil wood (poorly preserved).

Lamellibranchia:

Teredo in fossil wood.

Nuculana amygdaloides (J. de C. Sowerby) ... L. 82746.

Tellinidae L. 82745.

Gastropoda:

Tibia lucida (J. Sowerby) G. 70107.

Scaphopoda:

Dentalium nitens J. Sowerby G. 70105-6.

The specimen of *Tibia lucida*, some of the septarian nodules and some of the fossil wood were obtained before any part of the excavations had reached a depth greater than twenty feet below street level.

The Mollusca were determined by Mr. A. Wrigley, to whom my thanks are due. He tells me that *Nuculana amygdaloides* occurs in his divisions 2 and 3 of the London Clay, but that in view of the absence of other forms to be expected in division 2 he concludes that the Mollusca are from division 3, at about the middle of the London Clay.

LESLIE BAIRSTOW.

L.N.H.S./T.S./51/52. LONDON W.2.

INVERNESS TERRACE AND PORCHESTER GARDENS, BAYSWATER. Temporary excavation at cross roads, May 1952.

Section: Made Ground }
Gravel } 4½ feet.

Brown Clay, a foot or two seen: no fossils visible.

LESLIE BAIRSTOW.

L.N.H.S./T.S./53/52. LONDON W.8.

Temporary excavation on site bounded by Hornton Street, Campden Hill Road, Phillimore Walk and Holland Street. In middle of west

face of site (Campden Hill Road); about 24 yards square. Section 14 feet deep (N.W. corner) to 10 feet (S.E. corner).

Soil, etc.	2 feet.
Stiff brown weathered clay (London Clay type) with included flint gravel	6-8 feet.
Sandy ochreous brickearth with gravel, very gravelly at base	about 2 feet.
Grey to fawn clayey brickearth or sandy clay without gravel	about 2 feet seen.

On the west face the junction between the various beds was irregular, particularly between the two lowest beds, the gravelly seam being infolded into the underlying bed and trailing off at one point. This west face probably shows the effects of hill-slip.

This spot is marked on the 6 inch map as occurring on a narrow strip of London Clay between Taplow and Flood Plain gravel.

The nearest section to this is that recorded by Whitaker (*Geol.*, London (1889), vol. 2, pp. 318), for Horton Mews, a few yards eastward: soil, 2 feet; clay and gravel, 6 feet; sand and gravel "not bottomed". "Clay like London Clay" overlying loamy sand, was recorded from Campden House at the top of the hill (*op. cit.*, p. 327).

G. F. ELLIOTT.

Book Reviews.

The Changing Wild Life of Britain. H. L. Edlin. 117 illustrations. London: B. T. Batsford, Ltd. 21/-.

To any naturalist in London, man's influence on nature is obvious in every direction. He is inclined, however, to take the natural condition of much of the surrounding countryside for granted. As Mr. Edlin shows well in his book, there is practically no corner of Britain which has not been profoundly altered by human agencies, and the wild life must be viewed against a much modified background. The author discusses the various ways in which, during the last few hundred years, many animals and plants have become adapted to this altered environment or have disappeared.

Many examples of changed habitats are given: one of the most important is perhaps the hedgerow, which has developed its own characteristic flora. There is much information in this book and it is recommended, but there are some minor criticisms. There is a tendency to include long lists of species without giving much information about each one. This attempt to make the book complete is bound to fail with a subject so vast. In the list of birds of changing status a London ornithologist immediately notices the omission, for example, of the Black Redstart and the Little Ringed Plover. It would have been better, perhaps, to select a few examples and to discuss them more fully. The information on the range and status of the birds is often

inadequate and not up to date. The photographic illustrations are excellent but the line engravings have reproduced poorly and are not up to the standard expected of Messrs Batsford.

G. B.

Animal Ecology. W. H. Dowdeswell. Pp. xv + 207 + 45 figures + 16 plates. London: Methuen & Co. Ltd. 12/6.

To cover *Animal Ecology* in a small volume with adequate illustrations was a difficult task but has been admirably completed by the senior biology master of Winchester College. The wealth of accurate facts are well selected and arranged to show the main types of environment and their communities. Thus the land, marine, estuarine and freshwater communities are dealt with in successive chapters introducing the various factors and natural laws controlling the inter-relations between species of animals in these environments. The introductory chapters give the essentials forming the background and scope of ecology, review the causes influencing the distribution of animals and discuss the general features of all animal communities. An all too brief chapter covers practical work and the book is rounded off with an outline classification of animals and a very useful glossary.

The index is good but a minor improvement suggested is that the reference to the figures and plates should give the page reference on which the figure appears or the page opposite to the plate. A very well selected bibliography has a few explanatory comments and an expansion of these would be of great assistance to readers. Although designed for senior school and junior university students the volume should have a far wider appeal, giving as it does a comprehensive appreciation of the ecology of animals written by a biologist of acknowledged ability.

The printing and production fully maintain Methuen's very high standard.

L. P.

The Spider's Web. T. H. Savory. 27 plates in colour and half-tone and numerous figures. London: Frederick Warne & Co. Ltd. 12/6.

From the Wayside and Woodland series many field naturalists will have expected something of the nature of a guide, enabling a novice to associate, in this case, particular webs with their builders. In general, it must be said that such people will be disappointed in this book, for Mr. Savory has made a bold decision and has undertaken to present an up-to-date summary of the researches on spider silk and on the nature and construction of spider webs. Judging by questions put to him by naturalists, young and old, the reviewer considers that Mr. Savory has not only made a wise decision to treat the matter thus, but has rendered a considerable service to arachnology. In this country the ideas of many naturalists (and indeed of some quite eminent biologists) on the subject have been vague and confused in the extreme. This is due very

largely to persistent ignorance or neglect of precise work which has been carried out on the continent, notably by Wiehle and Peters in Germany and by Tilquin in France. A great deal of this work has consisted of observations on the geometry, construction and use of the orb web, the most striking and interesting type of all. It is necessary that the results of these observations should be known and understood before naturalists speculate any more or plan further researches, and the author here acts as an unbiassed and competent guide, while being prepared to adopt a point of view where conflicting opinions can be held. He tells the story well and it makes excellent reading. Contrary to the ridiculous remark on the dust cover, there is a large literature to the subject (as the bibliography given here alone shows) and it would be very easy to mention topics which one might consider should have been included. I will mention only one, the method of attack of Theridiid spiders, in which sticky thread is thrown on to the prey, usually on some projecting limb, after which the spider approaches to give its paralyzing bite. The significance of the form of most Theridiid webs is not obvious unless this fact is always borne in mind. But the most important experiments bearing on the subject find their place. Holtzapfel's simple one with *Agelena*, which revealed, as well as any, the importance of tensions in the threads of a web to its owner; the observations of Hingston, the limitations and prejudice of Fabre's thinking on the subject, and the thorough and extensive researches of Wiehle, Peters and Tilquin are all dealt with. Speculations on the "development and modification" of web-making habits are always interesting and no two observers are likely to agree about them at the present time, so that the suggestions in Ch. VI., "Other kinds of webs," give one plenty to think about. Mention must also be made of a final chapter on preservation of webs, which is not such an easy matter as might appear at first sight. This is an unconventional "Wayside and Woodland", but if any naturalist should wish to undertake work on the subject, he will be well advised to read this book first.

G. H. L.

The Young Field Naturalist's Guide. Maxwell Knight, O.B.E., F.L.S.
Pp. 144, 15 pp. of photos. 1952. Bell & Sons. 10/6.

This is just the book to place in the hands of a youngster whose interest in our wild animal life has been aroused sufficiently for him to want to go into the field himself and to know how to make the most of his opportunities. This little book is attractively written and produced and is full of excellent practical advice ranging through observing, collecting, identifying, preserving, note-taking and reading, to the running of a Junior Nature Club and the School Museum.

It is such a pity that the author did not seek the collaboration of a field botanist and devote a little more to plant life than the grossly inadequate treatment of a mere two pages. The author rightly emphasises the necessity for labelling specimens with their "correct name, place and date" to which might be added *habitat*, so often absent

in collections; the 'correct name' might be put last on the list of desirable data.

It is to be hoped that the author will, in the next edition, revise his account of the use of the lens. No beginner should be told to close the other eye when looking through a lens; it is an unnecessary strain and will become a bad habit difficult to rectify when he starts to use the microscope and wants to observe with his left eye whilst drawing with the aid of the right. The author also fails to stress the need of keeping the lens close to the eye, so as to obtain as wide a field of view as possible. However, it is evident that he is an enthusiastic and experienced naturalist, even if he seems to be more at home with field glasses than with a pocket lens. The young reader can hardly avoid catching his enthusiasm and should be able to start his natural history observations along the right lines.

C. P. C.

We have also received copies of the following publications:—

Zoogeography of the Sea, by Sven Ekman. Published by Sidgwick & Jackson, Ltd. 42/-.

Insects Indomitable, by Evelyn Cheesman. Published by G. Bell & Sons Ltd. 12/6.

Sooty Bark Disease of Sycamore. Forestry Commission Leaflet, No. 30. 9d.

City Bombed Sites Survey.

Progress Report.

WORK during the past year has consisted mainly of the confirmation and extension of results previously obtained. It is unfortunate that, for various reasons, a number of those who have worked on the bombed sites in earlier years are now unable to do so with the same regularity. However, Mr. Wrighton and several other botanists have continued their study of the development of the vegetation. Their results, being capable of precise quantitative expression, are no doubt more likely to produce a clear and accurate picture of what is taking place than are the fragmentary and largely subjective records of zoologists. An example of their technique and of the results which it leads to is given in the paper by Mr. Wrighton which follows.

Plant Ecology at Cripplegate, 1951-2.

By F. E. WRIGHTON.

Continued observation of the quadrats and selected samples of vegetation has shown that changes are constantly taking place, and, up to the present, it has been felt that any publication of charts would

be premature. However, as it is now five years since the survey was started, an area has been chosen which shows a marked progression and which should serve to illustrate the type of work that is being done.

In this example *Artemisia vulgaris* L. is prominent, and this is typical of the Cripplegate sites as a whole, as large areas can now be seen dominated by the species, and its spread in all habitats is very noticeable.

The reasons for its success are fairly clear, and include the ability to germinate on a hard ground; no marked soil preference; high fertility; perennial habit; tall, dense foliage and good dispersal of seeds.

Another feature of the chosen sample is the retrogression of the genera *Atriplex* and *Chenopodium*. The frequency with which members of these groups appear on disturbed ground suggests either exceptional viability and/or a very efficient seed dispersal, together with a high fertility.

The factors acting against some of the annual species are, however, stronger. The late flowering period is very important, as it means that the germination of seeds does not occur until the summer of the following year; thus the plants—which are not frost resisting—spend the winter in the seed form. The seeds of many annuals germinate soon after ripening and the young plants live through the winter. They thus become well established by the spring and are able to flower quite early in the year. Seeds germinating in the summer have to reach maturity during months which may be hot and dry, and unless the soil is fairly loose and receptive to moisture, the plants are not able to achieve the speed of growth necessary to ensure full development. Now that the soil on the bombed sites is becoming consolidated, it is possible to see many tiny plants of *Chenopodium album* L. which are unable to grow to normal size. Under these circumstances other plants soon develop and supersede the *Chenopodium*.

Referring to Fig. 1 it can be seen that in 1948 the sample plot was covered by *Atriplex patula* L. and *Chenopodium album* L., with a small amount of *Senecio squalidus* L. and some seedlings of *Epilobium angustifolium* L. Mosses and other small plants were present, but are not shown.

In 1949 (Fig. 2) *Pteris aquilina* L., *Cirsium arvense* Scop. and *Artemisia vulgaris* L. appeared. These developed steadily during the following year, while the *Atriplex* and *Chenopodium* were replaced by *Sisymbrium orientale* L., a vigorous annual which develops and flowers early in the year, thus shading and dominating the seedlings of the other species. *Diplotaxis tenuifolia* DC., a strong perennial which is spreading rapidly in the sites, also arrived (Fig. 3).

By the summer of 1952 (Fig. 4) the perennials were in control and in competition with each other, and for the next few years it is probable that *Pteris aquilina* and *Artemisia vulgaris* will be the dominant plants. In the long run, one would expect the bracken to gain complete control, as it covers the ground at all seasons, either with its green fronds or with dead litter, and spreads rapidly by means of its rhizomes.

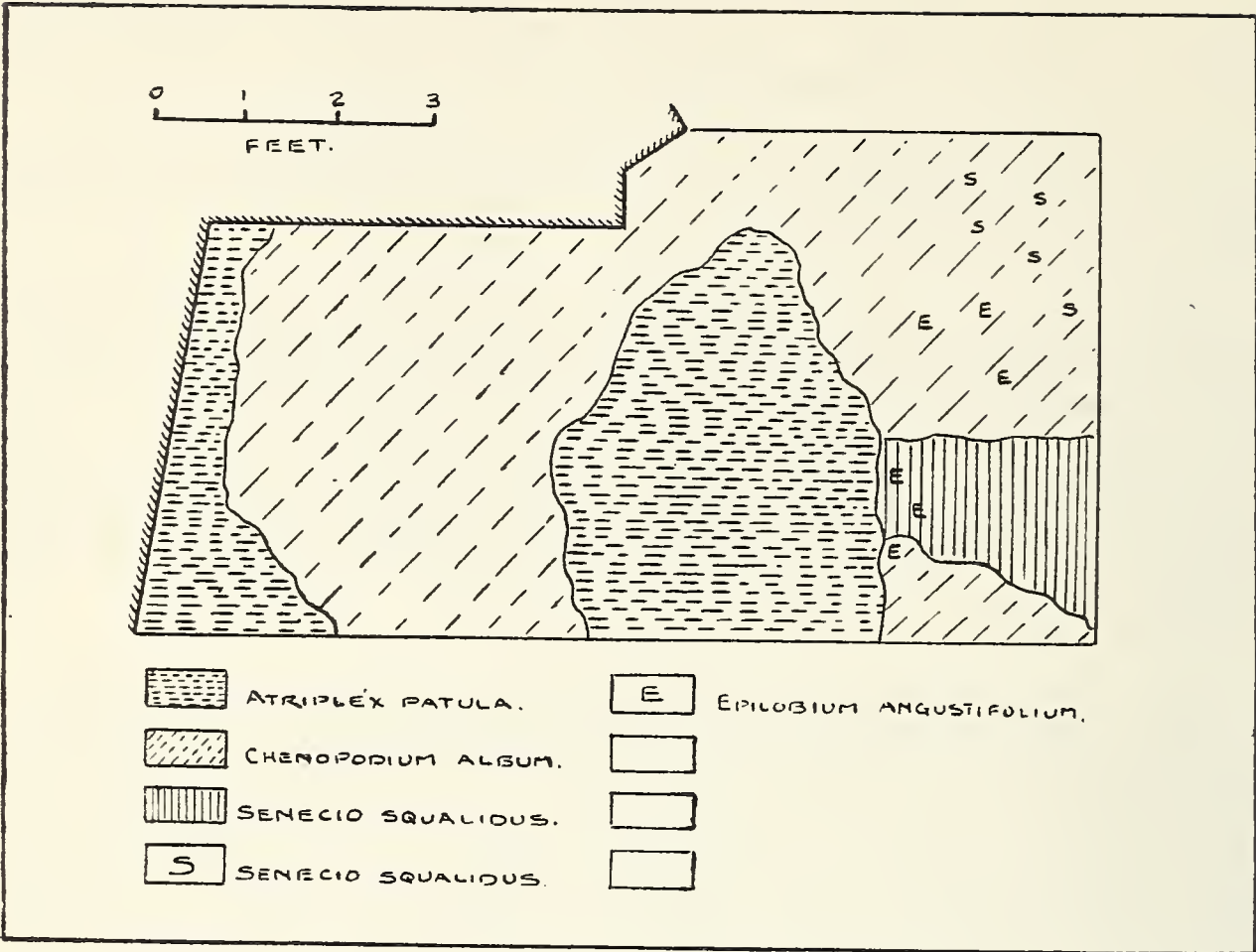


Fig. 1. Vegetation in September 1948.

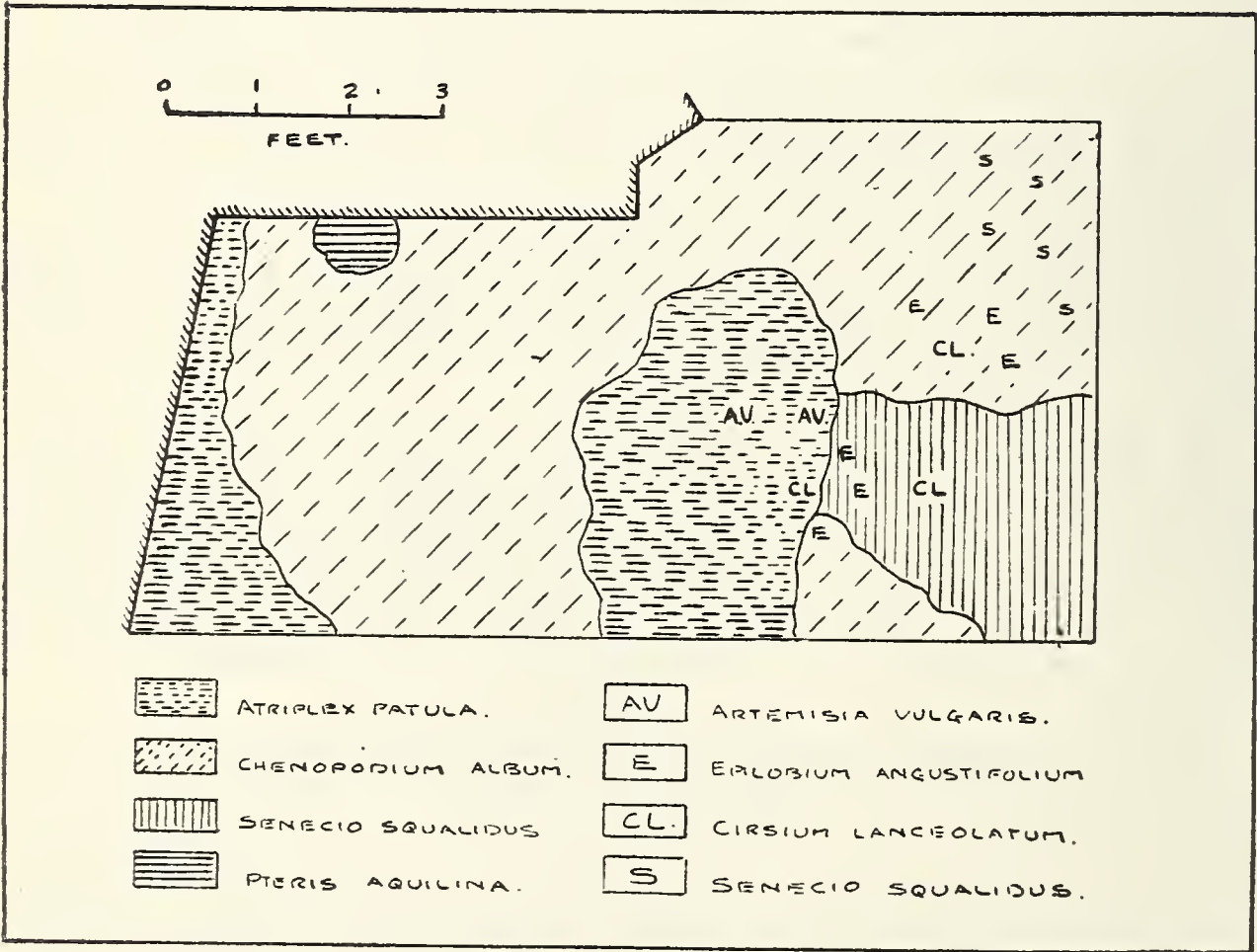


Fig. 2. Vegetation in June 1949.

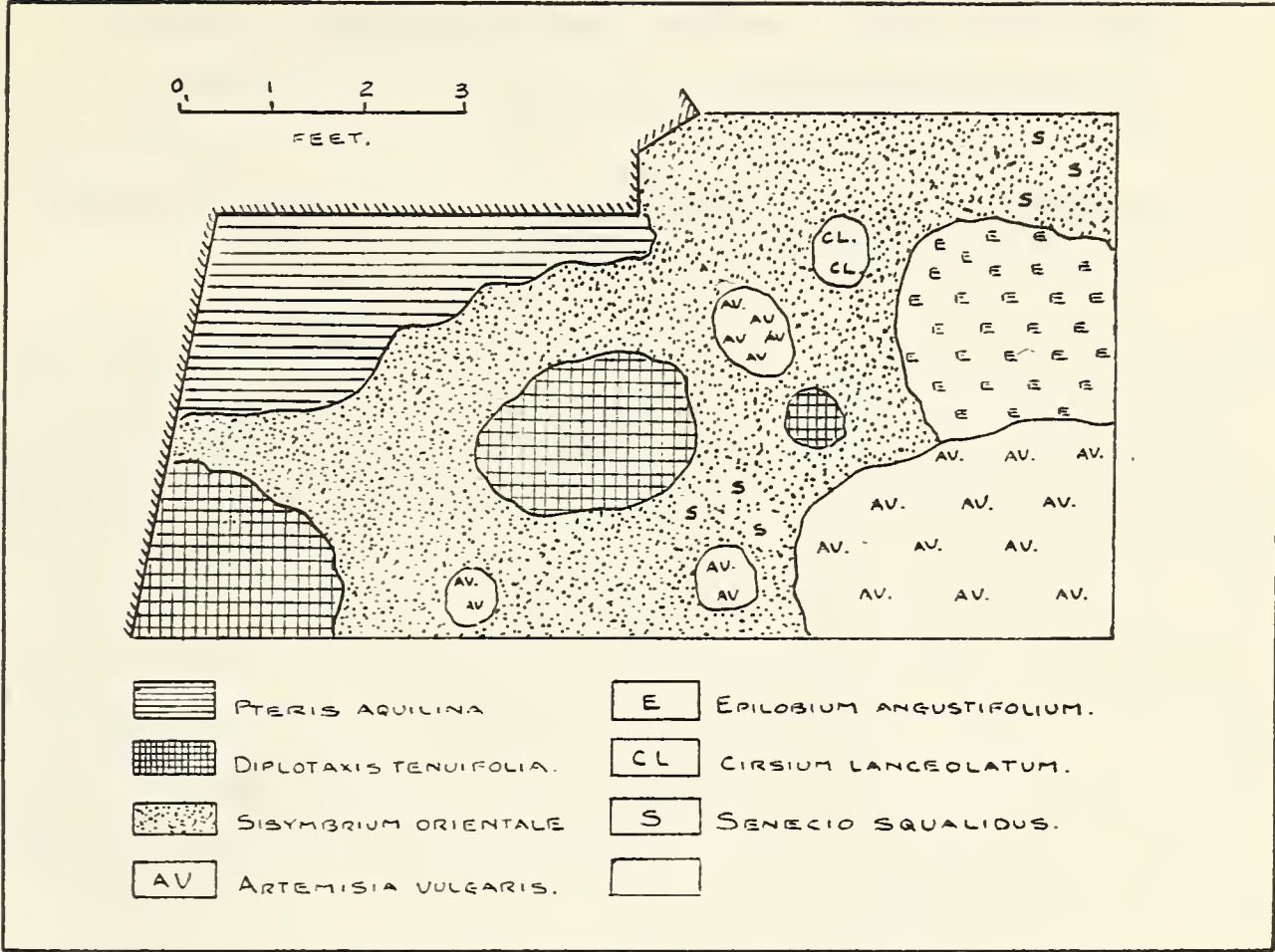


Fig. 3. Vegetation in July 1951.

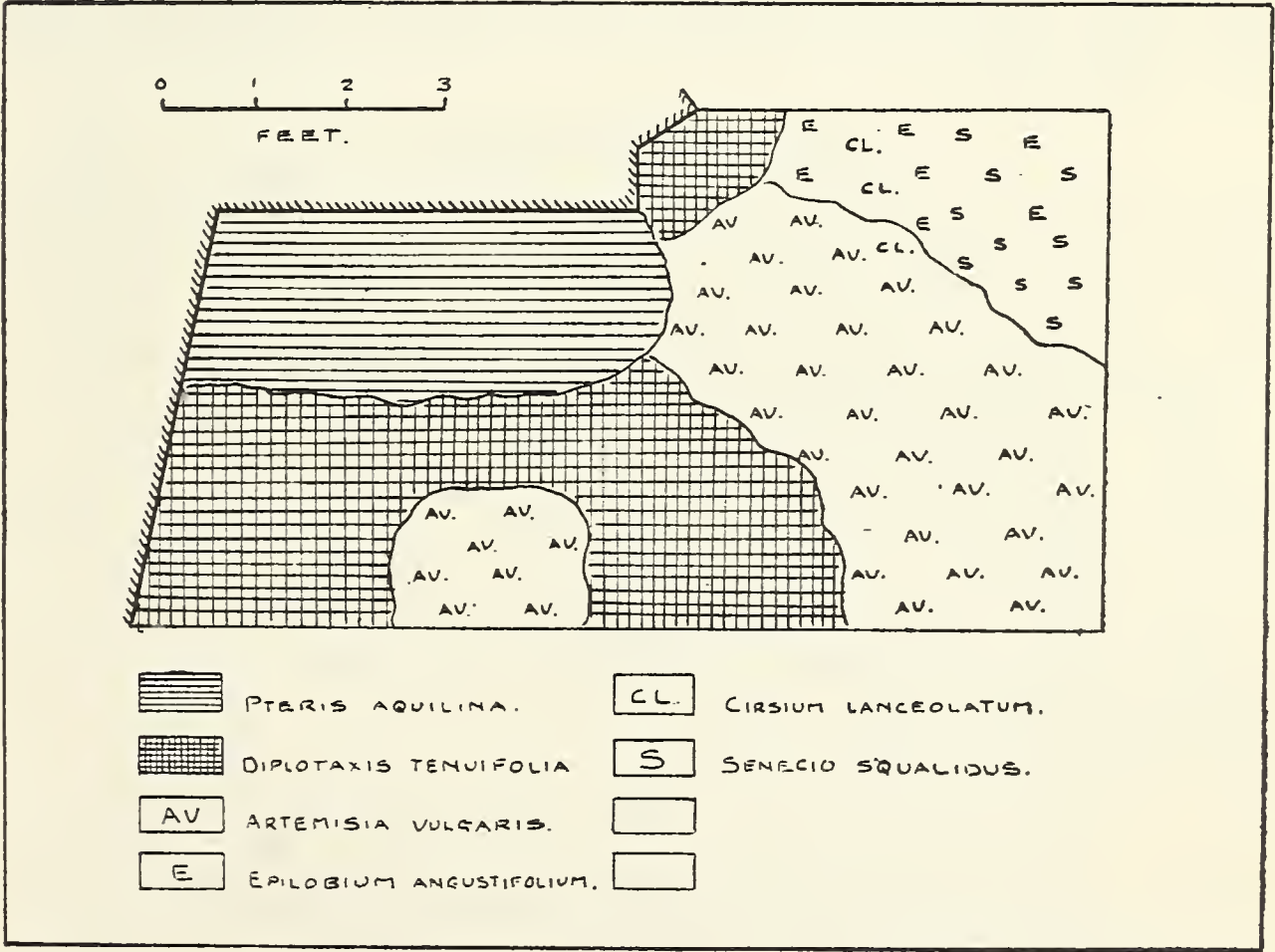


Fig. 4. Vegetation in September 1952.

Contributions to the Bibliography of the Natural History of the London Area.

2. A Subject Index of the Society's Journals, 1914-51.

By R. S. R. FITTER.

THE index consists of two parts, an alphabetical list of papers and other items by authors, and a subject index, with references to the first list by author and date of publication, under a number of broad groupings. The journals of the Society which have been indexed are the *Transactions of the London Natural History Society* for the years 1914-1920, *The London Naturalist* for the years 1921-51, and *The London Bird Report* for the years 1936-1951.

In the author index the date following the author's name is that of publication, according to normal bibliographical practice, not that of the year to which the journal relates. In the subject index, dates after authors' names linked by an ampersand, e.g. "1946 & 1950," belong to the same reference, but dates separated by commas denote different references. Dates linked by a dash, as "1938-39," denote papers published in consecutive years.

References to the two main journals, the *Transactions* and the *London Naturalist*, are in the form "49/36-45" or "19/1," indicating "*London Naturalist*" for the year 1949 (published 1950), pages 36-45, and *Transactions* for 1919, page 1, respectively. References to the *London Bird Report* take the same form, but are preceded by a B, e.g. "B36/28-29."

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For references to *Plants* consult the following main headings:

- Botany (general).
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References to the Society's Ecological Surveys will be found under the following main headings:

- Bookham Common Survey.
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All other references fall under the remaining main headings, viz.:

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Statistics : Tucker 1947, 1952.

War, effects of : Parrinder 1945.

Birds (species).

Great crested grebe (*Podiceps cristatus*) : Hollom 1933, 1936, 1947, Homes 1938a, Melliush 1952, 1952a, Parrinder 1948-50.

Dabchick (*P. ruficollis*) : Homes & Parmenter 1935.

Heron (*Ardea cinerea*) : Fitter *et al.* 1946a, Pethen 1935.

Anatidae : Homes 1938a, 1948, 1952, Meares 1915.

Mallard (*Anas platyrhynchos*) : Höhn 1948.

Teal (*A. crecca*) : Homes 1941.

Tufted duck (*Aythya fuligula*) : Bartlett 1945, Homes 1939.

Pochard (*A. ferina*) : Homes 1936.

Grey geese (*Anser* spp.) : Berry 1936.

Mute swan (*Cygnus olor*) : Burkill 1943c, Ticehurst 1934.

Hobby (*Falco subbuteo*) : Roberts 1937.

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Common sandpiper (*T. hypoleucos*) : Parrinder 1940.

Redshank (*T. totanus*) : Fitter 1940.

Gulls (*Larus* spp.) : Hardiman 1928, Rowberry 1934, Stubbs 1917.

Glaucous gull (*L. hyperboreus*) : Anon. 1947, Fitter 1943b.

Iceland gull (*L. glaucoides*) : Anon. 1947, Fitter 1943b.

Black-headed gull (*L. ridibundus*) : Bartlett 1944.

Stock-dove (*Columba oenas*) : Fitter 1940.

London pigeon (*C. livia*) : Goodwin 1952.

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: Kent : Rose 1950.
: Middx. : Kent 1947, 1948-49.
: Surrey : Robbins 1939-40, Whitehouse 1952.

Galls : See *Plant Galls*.

Habitats : Burkill 1926, 1935, Castell 1939, Dallas 1935, E. M. Payne 1936, Robbins 1937, 1938.

Herbs : Anon. 1943.

History : Kent 1950.

Photographs : Lousley 1937.

Vegetation Surveys : See *Ecology*.

City Bombed Sites Survey.

Birds : Currie 1950.

General : Anon. 1951-52, Currie 1948-50.

Invertebrates : Bensley 1952, Currie 1952, Le Gros 1949, Owen 1952.

Plant Ecology : Wrighton 1948-51.

Cryptogams.

Algae : Norkett 1949.

Bryophytes : Boniface 1950, Castell 1938a, Peterken 1942.

Ferns (general) : Collenette 1948, Payne 1934, Robbins 1926.

(species) : *Dryopteris cristata* : Payne 1938.

: *Osmunda regalis* : Payne 1942.

: *Pteridium aquilinum* : Collenette 1937, Robbins 1937, 1938a.

Fungi : Ainsworth 1946, Castell 1947, 1949, Lousley 1938, Ross 1939a, 1945, 1946a.

Hepatics : Ross 1925.

Lichens : Norkett 1938.

Ecology.

Birds (habitat) : Beven 1951, Carrington *et al.* 1944, Currie 1939, Cramp 1949, Cramp & Teagle 1950, 1952, Parmenter 1940a, Parmenter & Fitter 1941, Tucker 1947a.

Birds (species) : See *Birds* : Great crested grebe, Heron, Anatidae, Swift, Swallow, House-martin, Rook, Black redstart.

General : Richards 1949, Tucker 1947, 1952.

Mammals : Dawson 1940, Tucker 1947a.

Vegetation (habitat notes) : Bangerter & Castell 1949, 1951, Burkill 1926, 1935, Robbins 1937, 1938.

— (surveys) : Boatman 1949, Castell 1939, 1945, Steele 1947, Wrighton 1948-51.

Entomology (general).

Annual notes : Burkill 1933 & 1937 & 1944-45.

Distribution : Collenette 1939, Longfield 1946.

History : Prout 1935.

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Plants, relations with : Bagnall 1931 (buckthorn), Sich 1916 (hawthorn), Steel 1938 (willow).

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War, effects on : Cockayne 1916.

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History : Bayes 1944.

Invertebrates : Pinniger 1945, Ross 1945, 1947, 1948.

Mammals, Reptiles & Amphibians : Hoy & Tucker 1945, Tucker 1947a, 1948.

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Flowering Plants (species).

Araujia sericifera : Nicholson 1934.

Aristolochia spp. : Anon. 1929, 1929a.

Carpinus betulus : Burkill 1929.

Crataegus spp. : Sich 1916.

Epilobium spp. : Robbins 1941.

Fritillaria meleagris : Spooner 1933.

Herniaria glabra : Kent 1950a.

Juniperus communis : Anon. 1949.

Neottia nidus-avis : Dallas 1927a.

Rhamnus spp. : Bagnall 1931.

Rubus fruticosus : Avery & Watson 1947, Robbins 1932, Watson, 1928-31 & 1933 & 1935.

Rumex spp. : Lousley 1945.

Salix spp. : Fraser 1927, Steel 1938

Sisymbrium spp. : Bangerter & Welch 1952.

Ulmus spp. : Jackson 1928.

Viola spp. : Robbins 1925, Bishop 1925.

Gazetteer for Home Counties (see also Archaeological Inspections).

Essex.

Benfleet : Parmenter 1938b.

Epping Forest : Johnston 1938, Ornithological Section 1919-23, 1924, Pinniger 1933, Robbins 1916, Ross 1925, Simpson 1935; see also *Epping Forest Survey*.

Greensted : Chapman 1928.

Ongar : Forster 1932.

Walthamstow Reservoirs : Pethen 1925, 1935.

Wipers Wood : Johnston 1935.

Kent.

Elmers End : Manser 1945.

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Romney Marsh : Lack 1932.

Middlesex.

Edmonton : Mann 1935.

Enfield : Parrinder & Parrinder 1942.

Hampstead Heath : Guichard & Yarrow 1948, Yarrow 1941

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Hendon : Hale 1935.

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Inner London : Bartlett 1944, Macpherson 1925-28; see also *City Bombed Sites Survey*.

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Ely Place : Cocksedge 1948.

Green Park : Cramp & Teagle 1952.

Hyde Park : Collenette 1939.

Kensington Gardens : Collenette 1939, Cramp 1949, Cramp & Teagle 1950.

Regent's Park : Cramp 1949.

St James's Park : Bartlett 1945, Cramp & Teagle 1952.

Tothill Fields : Kent 1950.

Mill Hill : Dawson 1940.

Winchmore Hill : Hanson 1927.

Surrey.

Barnes Common : Whitehouse 1952.

Bookham Common : see *Bookham Common Survey*.

Brixton : Cocksedge 1934.
 Byfleet : Parmenter 1944.
 Epsom Common : Robbins 1937.
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 Limpsfield : Currie 1938a, Robbins 1925: see also *Limpsfield Common Survey*.
 Mole valley : Burkill 1935, Edmunds 1944.
 Norwood : Cocksedge 1933.
 Oxshott : James 1918.
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 Wey valley : Chapman 1915.

Sussex.

Worth & Tilgate Forests : Guichard 1938a, Waller 1938.

Geology.

Ainsley 1950-52. Butler 1951, Edmunds 1944. Himus 1950, Robbins 1938.

History.

Commons : Simpson 1935.
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 Roman : Johnson 1938.
 Surrey : Chapman 1915, Cocksedge 1933, 1935, Harvey 1943, Macer-Wright 1952, Sheldon 1939.

Insects (by orders).

Orthoptera : Harrison 1943a.
 Odonata : Longfield 1949, R. M. Payne 1945, Pinniger 1933, 1934-38, 1945.
 — (species) : *Aeshna mixta* : Pinniger 1934.
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 : *Deilephila elpenor* : Burkill 1928a.
 : *Epinephele jurtina* : R. W. Robbins 1929.
 : *Euchloë cardamines* : Williams 1916.
 : Geometridae : Prout 1917.
 : *Papilio podalirius* : Simes 1935.
 : Pieridae : Harvey 1944.
 : *Pieris napi* : Simes 1938.
 : Sesiidae : Newman 1915.
 : Vanessidae : Williams 1924.
 Coleoptera : Buck 1939, Easton 1946-49 & 1952, Guichard 1938a, L. G. Payne 1945.
 — (species) : *Coeliodes cardui* : Niblett 1930.
 : *Lampyrus noctiluca* : Pethen 1934.
 : *Strangalia aurulenta* : Nicholson 1932.
 Hymenoptera : Guichard 1939.
 — Aculeata : Guichard 1938, 1939-40, Guichard & Yarrow 1948.
 — Symphyta : Currie 1952.
 — (species) : *Andrena* spp. : Yarrow 1941.
 : *Emphytus carpini* : J. S. Robbins 1927.
 : Ichneumonidae : Currie 1938a, Harvey 1944.
 : *Nomada* spp. : Yarrow 1941.

- : *Pteronidea spiraeae* : J. C. Robbins 1929.
- : *Sirex gigas* : Richardson 1932.
- : *Vespa crabro* : Vere 1947.
- : *Vespa vulgaris* : Spittle 1933a.
- : See also *Plant Galls*.

Diptera : Niblett 1952, Parmenter 1937, 1938, 1938a, 1938b, 1938c, 1941, 1942, 1950, 1952, 1952a, J. C. Robbins 1930, Waller 1938, Watson 1938.

- (species) : Asilidae : Parmenter & Oldroyd 1940.
- : Conopidae : Parmenter 1952a.
- : Dolichopodidae : Parmenter 1940.
- : *Sargus bipunctatus* : Nicholson 1932.

Aphaniptera : Buxton 1932.

Invertebrates (not Insects).

Arachnida : Burkill 1930, Dallas 1938, Le Gros 1949, 1951, Locket 1939, Thomas 1939.

Crustacea : Ellis 1948a, 1948b.

Mollusca : Bensley 1948 & 1952, 1952, Ellis 1948, Harrison 1945.

Limpfield Common Survey.

Birds : Currie 1938, 1939, 1939a, Parmenter 1940a, Parmenter & Fitter 1941.

Botany : Castell 1938a, 1939, Lousley 1938, Norkett 1938, Peterken 1942, Robbins 1938, 1938a, 1939-40, Ross 1939a.

General : Castell 1944, Lousley 1939, Parmenter 1938 & 1940, Parmenter & Thomas 1937, Robbins 1938, Sheldon 1939.

Geology : Robbins 1938.

Invertebrates : Burkill 1938, Guichard 1939-40, Harrison 1943a, Parmenter 1938c, 1942, Robbins 1940.

Mammals, Reptiles & Amphibians : Fitter 1938, 1941, Harrison 1943.

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Topography : Robbins 1938.

Mammals (general).

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Distribution (general) : Fitter 1937a, 1938-39, 1942, 1949, 1950.

- (by counties) : Essex : Hoy & Tucker 1945, Tucker 1947a, 1948.
- : Middx. : Dawson 1940.
- : Surrey : Fitter 1938, 1941.

Gibbets : Hanson & Johns 1945.

Population : Dawson 1940.

Mammals (species).

Stoat (*Mustela erminea*) : Dallas 1927.

Rabbit (*Oryctolagus cuniculus*) : Harrison 1943, R. W. Robbins 1927.

Grey squirrel (*Sciurus carolinensis*) : Fitter 1939, Johnston 1938.

Black rat (*Rattus rattus*) : Fisher 1950.

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History of the Society : Aris 1925, Foster 1940, Hornblower 1930, Mera 1915, Payne 1948-49.

Land Utilisation Survey : Stamp 1937.

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Soil Acidity : Castell 1938.

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| Austen, W. C. A. 19/45. | Loram, H. Y. 21/xx. |
| Axford, W. G. 41/11. | MacIntosh, D. 18/38. |
| Bacot, A. W. 21/xvii & see Greenwood 1924. | Mera, A. W. 30/37. |
| Baker, E. C. Stuart. 44/68. | Mounsey, D. J. 30/39. |
| Balfour, Sir A. 30/39. | Murray, C. 20/13. |
| Bishop, E. B. 47/112. | Nicholson, C. 39/35. |
| Braithwaite, J. O. 37/23. | Nicholson, C. S. 18/38. |
| Brend, W. A. 44/68. | Nicholson, Mrs. E. A. 21/xx. |
| Briggs, C. A. 16/98. | Oldham, C. 41/11. |
| Brooke, T. W. 17/43. | Patterson, R. 31/37. |
| Brooks, G. 18/38. | Payne, H. T. 30/39. |
| Brown, A. 51/97. | Payne, L. G. 48/124. |
| Burrows, C. R. N. 36/23. | Pethen, R. W. 44/67. |
| Chapman, E. 29/113. | Prout, L. B. 43/46; & see Cockayne 1946 |
| Chapman, T. A. 21/xx. | Reynolds, F. 16/99. |
| Cook, C. A. 28/94. | Riches, J. 28/93. |
| Cooke, Rev. P. H. 50/84. | Robbins, Mrs. E. L. 31/36. |
| Dodd, W. R. 19/44. | Robbins, J. C. 31/35. |
| Finch, F. R. 35/18. | Robbins, R. W. 41/2. |
| Flowers, C. 19/45. | Routledge, G. B. 34/21. |
| Forster, W. C. 36/24. | Samuelson, E. 31/36. |
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| Gibb, A. E. 17/43. | Scollick, A. J. 17/43. |
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| Grubb, W. C. 30/38. | Smith, C. B. 45/77. |
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| Hanbury, F. J. 37/24. | Stanley, S. F. 32/37. |
| Hanson, P. J. 48/126. | Stowell, H. S. 49/142. |
| Hanson, Mrs. 21/xx. | Sulman, J. E. 42/2. |
| Harvey, A. A. 46/118. | Thompson, P. 44/68. |
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| Hibbert-Ware, A. 43/46. | Walsingham, Lord. 19/44. |
| Hicks, J. B. 34/21. | Wattson, R. M. 39/34. |
| Hose, M. M., see Wilson. | Williams, C. H. 35/19. |
| Huckett, T. 21/xx. | Williams, E. 16/100. |
| Johnston, F. J. 47/113. | Wilson, M. M. 47/114. |
| Joicey, J. J. 31/38. | Witherby, H. F. 43/48. |
| Lewis, S. G. 16/98. | Wright, W. A. 49/142. |

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Annual reports : Burkill 1932-47 & 1949, Niblett 1948.
Essex : Ross 1945, 1947, 1948.
General : H. J. Burkill 1927, 1930, 1932, Niblett 1929, Ross 1946.
Species : Burkill 1934, Niblett 1931, 1951, Ross 1931, 1934, 1939.
Surrey : Burkill 1938, 1946 & 1950, Niblett 1931a, 1949 & 1951-52, 1950.

Vertebrates.

Amphibians & Reptiles (general).

Bibliography : Fitter 1948.

Distribution (general) : Fitter 1937a, 1938-39, 1942, 1949, 1950.

— (by counties) : Essex : Hoy & Tucker 1945, Tucker 1947a, 1948.
: Surrey : Fitter 1938, 1941, Panchen 1951.

Amphibians (species).

Natterjack toad (*Bufo calamita*) : L. G. Payne 1936.

Birds : See *Birds*.

Fishes : Horn (1923).

Mammals : See *Mammals*.

Reptiles (general) : See *Amphibians & Reptiles* (above).

Reptiles (species) : Smooth snake (*Coronella austriaca*) : Hall 1929.

Obituaries.

Charles Stuart Bayne.

AFTER a courageous fight against ill-health during the last four years or so, Charles Stuart Bayne died very suddenly on 28th June 1951, in his 76th year. He died in a nursing home to which he had been discharged from hospital only three days earlier. Bayne was born at Helensburgh, being a son of Thomas Bayne, the proprietor of the "Larchfield Academy," where he was educated. Developing a flair for writing, he decided on journalism as a career and obtained a post on a Nairn newspaper. He then sought experience with a firm of paper-makers, then, reverting to his journalistic tastes, he went to Edinburgh and worked for seven years with the well-known firm of Blackies. Here he received an invitation to come to London as Editor of a once well-known children's magazine, "Little Folks", published by Cassells, a magazine whose name survives in the name of a ward in a London children's hospital and in that of a children's convalescent home at Cooden, Sussex.

The 1914-18 war took him into the Army for home service, and on discharge he decided to start in business for himself as an Artists' and Authors' Agent. This he did and carried on till the Second World War brought this not-too-successful venture to a stop. He then obtained posts in various Government Departments, finally in the Ministry of Education, but about 1948 he had a serious illness and on partial recovery found his ability to work seriously impaired and it was not long before he had to give up work.

Bayne joined the Society in 1915, his interests being general Natural History, although Ornithology was his particular subject. About this time the Publications Secretaryship of the Society became vacant and the Council, knowing Bayne's journalistic experience, invited him to take the post, which also included the Editorship of our yearly publication "The London Naturalist." This office he held from 1923 for eight years. On retiring, the Council officially thanked him for his services and elected him a vice-President of the Society. In this capacity he served on the Council, the Society thus retaining the advantage of his knowledge and experience. Bayne became a member of the Ornithological Section on its formation in 1918 and remained a member to his death.

He published several books on natural history subjects, including in particular "The Call of the Birds" and "Exploring England", both illustrated by C. F. Tunnicliffe, A.R.A. For the Royal Society for the Protection of Birds he wrote a booklet encouraging bird-protection and entitled "A Bird in the Bush is Worth Two in the Hand".

Bayne was not married. He was a life member of the Savage Club, where he had many friends and was well known and liked. Another of his interests was Freemasonry, having served his mother lodge, the Pen and Brush, twice as Master and having been honoured with the Status of London Grand Rank. The Press announcement of his death said he was 'much loved by his friends.' He was, indeed!

S. A.

John E. S. Dallas.

Members of the Society heard with deep regret of the death of J. E. S. Dallas who passed away in Leatherhead Hospital after a short illness on 14th November 1952. Born in London and educated at Alleyn's School, Dulwich, he had there as his contemporaries, C. C. Fagg, M. G. Palmer and the present writer. These and other lads were keenly interested in natural history and roamed the then unspoilt country around Croydon in search of 'specimens'. Nor was pond-work on Mitcham Common neglected and a delectable spot nearby, then called Lonesome, yielded Musk Beetles and Eyed Hawk larvae. On leaving school, Dallas entered the Civil Service, from which he retired a few years ago. His activities were soon extended, alone or with a companion, to the Continent, and at different times he cycled through Normandy, the Pyrenees and the confines of Germany. On these journeys he developed his linguistic abilities and pursued his natural history studies with characteristic ardour.

A chance introduction soon directed him to the informal rambles which the late E. Kay Robinson conducted in the Leatherhead and Dorking districts, at intervals, throughout the year. "E.K.R." had a winning personality and was a "Giant" among field naturalists. Congenial friendships were formed and the outings were occasions of unalloyed delight. Among those usually present were W. H. Spreadbury, J. Ross and the writer, and here John met Miss Rosa F. Marsh whom he afterwards married. It was a felicitous union. Both Mr and Mrs Dallas had a genius for making and retaining friends and first at Hampstead and afterwards at Leatherhead, they welcomed them, unstintingly, to their home. Many members of the L.N.H.S. remember with lively pleasure their constant hospitality.

After marriage, Mr. and Mrs. Dallas usually spent their holidays in Switzerland and the adjacent countries, often in company with two or three intimate friends, and it was a pure delight to be invited to join them. John was in his element, his ardour and energy were infectious, rough ways were made smooth and his happy companions were content to follow his lead. How well the writer and his wife remember the Scarce Swallow-tails at Stalden, the yellow anemones at Carezza, and the Nutcrackers among the Arolla pines.

John had been introduced by Mrs Dallas to the Battersea Field Club, a small but influential body which numbered amongst its members some eminent men, but it was in the L.N.H.S., which he joined shortly afterwards at the invitation of Mr. Ross, that his chief interests were

centred. His all-round knowledge of Natural History in the field, his enthusiasm and vitality, soon marked him out for office.

In 1927, he became Chairman of the Ornithological Section, an office which he relinquished to become Director of Sectional Organization in 1930. In 1933, he was elected President of the Society, a position which he filled for three years, working for its welfare with characteristic assiduity. Thereafter, for a short time, he was Chairman of the Ramblers' Section, a post which he resigned on his evacuation to North Wales during the late war. Since then, he had been a Vice-President of the Society.

Dallas was pre-eminently an ornithologist, his keen sight and hearing and his powers of observation being brought into full play in this favoured pursuit. There were very few birds within his range of action which he had not studied in the field. Whether it was terns on the Norfolk coast, avocets in Suffolk, woodlarks near London, or stone curlews on the South Downs, he sought them out on his peregrinations. On one occasion he and Mrs. Dallas visited Shetland in search of the rare birds of that region. Only a few months ago, he was watching with his friend Mervyn Palmer the fulmars at Baggy Point. He thus gained an unusual knowledge of birds in their particular haunts. Beyond these passing activities, he contributed many records to the *London Bird Report*.

Dallas was also a very capable botanist and possessed the enviable faculty of discovering new habitats for rare plants. He had, too, an extensive knowledge of entomology. Adventures are for the adventurous and it was fitting that he should discover near his home, some years ago, one of the few examples of the Migratory Locust which reached England in that year. In archaeology, he was keenly interested in Saxon Art and once made an adventurous journey on cycle to the North of England, to look up the Saxon churches in that district. I am reminded that when visiting Norway with Mrs. Dallas, in spite of obvious difficulties, he seized the opportunity of photographing many of the old wooden churches which are a feature of that country. But that was characteristic. Dallas was always ready to put himself to trouble and exertion in order to make first-hand observations or to obtain material for future lectures.

He was, by the way, a constant and successful lecturer and a skilled photographer. He excelled, particularly, in studies of alpine plants to which he devoted exemplary patience. Many of his photographs have appeared in the *London Naturalist*. He will be remembered, too, as a popular leader on many rambles. In all these ceaseless activities, he was helped and encouraged by Mrs. Dallas, for her own part a skilled field-worker.

But when all is said and done, perhaps we remember John best as an inspiring and delightful companion, versatile and helpful to an astonishing degree. It is, indeed, sad that we shall not see him again and his passing is mourned by a host of friends.

W. C. C.

W. E. Glegg.

We were shocked to learn of the death of W. E. Glegg on 13th February 1952. Full obituary notices have appeared in *British Birds* (Vol. xlv, No. 12) and *The Ibis* (Vol. 94, No. 3), but it seems appropriate to recall here his long association with this Society, culminating in his term as President in 1928-9. He was Recorder for Birds in 1913-7, and General Secretary and Chairman of the Ornithological Section from 1919 to 1925. He served on the Council in 1926, and on his retirement from the presidency became a Vice-President, an office which he held for 16 years. His contributions to the *London Naturalist* and the *London Bird Report* extended from 1923 to 1939.

Dr. George Carmichael Low.

Dr. George Carmichael Low, who died on July 31, 1952, in his eightieth year, had been a member of the Society since 1930 and had contributed extensively to the records of the Ornithological Section for some twenty years. As a specialist in tropical medicine he enjoyed a great reputation, while in ornithological circles his chief interest was in the waders and his book on *The Literature of the Charadriiformes* has long remained the standard work on its subject. For many years he was an active member of the Council of the Royal Society for the Protection of Birds, and during the late war he was Acting Secretary of the British Ornithologists' Union.

London bird-watchers will chiefly remember Dr. Carmichael Low as one of the three senior ornithologists who watched the birds of Staines Reservoirs so assiduously and so profitably from the famous causeway. Many will, no doubt, remember how keen an interest he took in all newcomers to this observation point and how ready he was to assist them. They will recall also with real affection his rather droll comments on the passing scene in an accent which despite many years in London had surrendered nothing of its native character.

It is a testimony to his ever-youthful enthusiasm that unusual observations were often commemorated by the use of red ink in his notes, and his 'red-letter days' will be remembered by many of the Society's officials. Another writer has described him as "one of the kindest, most lovable and most modest of men", a tribute which no one who knew him would dispute, while his contributions to our knowledge of the ornithology of the reservoirs and the central parks have earned him a lasting place in the annals of London ornithology.

R. C. H.

Arthur Holte Macpherson.

With the death of A. Holte Macpherson, Honorary Vice-President, in January 1953, there passed one of the best known London ornithologists. His first articles on London Birds appeared in *Nature Notes* in 1891 and were continued in its successor, the *Selborne Magazine*, until 1921 when the publication of the magazine ended. They were recommenced

in the *London Naturalist* and in 1928 they were superseded by a series in *British Birds*.

He was the second son of Sir Arthur G. Macpherson, K.C.I.E., and a nephew of the northern ornithologist, Rev. H. A. Macpherson. He was educated at Marlborough and Trinity College, Oxford, where his birdwatching was encouraged. There he studied law and later he practised as a solicitor. His legal training and abilities were freely extended to the Societies he supported. He served on the Council and on committees of the Royal Society for the Protection of Birds for very many years, and was a founder and a Life Member of the British Trust for Ornithology.

His respect for our Society was such that he would not accede at first to Harry Witherby's request to produce his "Birds of Inner London" in *British Birds* until he was assured that our Ornithological Section Committee were anxious that he should do so and would continue to support him. Member after member was introduced to the Society by him and he encouraged many more in the field and by letter.

His morning and evening walk, which I occasionally shared with him, through Hyde Park and Kensington Gardens, to and from his office, supplied his opportunities for daily studies. He also regularly visited Barn Elms Reservoirs and Staines Reservoir. Always he was interested in others' observations from beginner or expert, information and encouragement being freely given.

His small collection of bird skins, made whilst an undergraduate, mainly of birds bought in food markets in Italy, etc., during his holidays abroad, was handed to the Society as the basis of a reference collection. One evening he came to my home, bringing a Little Auk that he had found at Staines and had prepared as a skin, to share the pleasure of examining this interesting addition to the Society's collection.

Apart from trips to Holland and the Shetland and Orkney Isles with Dr. Carmichael Low, his holidays just prior to the war were generally spent bird-watching on the Norfolk coast where he was proud to be able to walk a daily 14 miles when over 70. This same pride in his fitness was shewn in his eightieth year when in 1946 Mr. R. C. Homes visited him in Devon, to which he had retired.

He was a most accurate and careful observer, but although he kept full notes in his annually indexed volumes he published little except his Parks and Inner London studies, which, stretching as they did over some fifty years, represent an invaluable contribution to London ornithology. His kindness and modesty led to his rôle of guide and adviser to all interested in London's birds and its reservoirs, or in the far wider fields of bird protection.

L. P.

STATEMENT OF ACCOUNTS
GENERAL

1951			<i>Receipts.</i>							
£708	3	0	Subscriptions—Current	...	...	...	...	£843	3	0
22	3	0	Arrears	...	...	...	...	40	15	6
12	5	0	In advance	...	...	...	...	13	3	6
18	0	0	Entrance Fees	...	...	...	...	32	5	0
<hr/>										
£760	11	0							£929	7 0
16	0	4	Interest on Post Office Account	...	...	...	...	...	19	19 6
2	12	6	Interest on £75 War 3½% Stock	...	...	...	...	...	2	12 6
2	2	6	Donations	...	...	...	...	...	3	5 4
—			Transfer from Botanical Records Account	...	...	...	...	...	30	6 7
35	0	0	Transfer from Reserve Account	—	
<hr/>										
£816	6	4							£985	10 11
82	8	2	Balance, 31st October 1951	6	18 1

£898 14 6	£992 9 0
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PUBLICATIONS

£59 6 4	Sales of Publications	£98	12 10
5 1 0	Advertisements in London Bird Report	8	7 0
0 15 0	Donations	...	...	...	...	27	12 0
26 7 6	Sales of Christmas Cards	...	...	...	...	24	11 0
443 18 0	Balance to General Account	377	1 0
<hr/>							
£535 7 10						£536	3 10

LEGACIES

Balance, 31st October 1951	£43	7 6
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LIFE COMPOSITION

Balance, 31st October 1951	£305	0 0
Cash received—one additional Life Member	15	0 0
—donation Life Member	...	...	...	...	...	5	0 0
<hr/>							
						£325	0 0

RESERVE

Balance, 31st October 1951	...	...	...	...	...	£75	0 0
From General Account	...	...	...	...	...	50	0 0
<hr/>							
						£125	0 0

BOTANICAL RECORDS

Balance, 31st October 1951	...	...	...	...	...	£34	6 7
<hr/>							
						£34	6 7

Audited and found correct.
20th March 1953

R. E. BUTLER, Hon. Auditor.
E. B. BANGERTER, Hon. Auditor.

**YEAR ENDED 31st OCTOBER 1952.
ACCOUNT.**

1951		<i>Payments.</i>	
£141 11 0	Rent	... ..	£134 7 0
98 19 6	Programme expenses (Printing and Postages)	... ..	93 14 7
19 7 11	Printing and Stationery	... ..	53 10 0
16 13 3	Postages—Secretary and Treasurer	... ..	30 15 0
2 18 6	Insurance	... ..	2 18 6
4 0 0	Gratuities	... ..	2 0 0
8 6 0	Subscriptions	... ..	9 7 0
51 8 0	Sectional Expenses	... ..	56 12 11
4 10 6	Chingford Branch Expenses	... ..	3 0 0
—	South West Middlesex Group Grant	... ..	9 10 0
1 18 9	Grant—"Birds of London Area"	... ..	1 5 0
81 0 0	Secretary's Honorarium and clerical assistance	... ..	91 0 0
10 0 0	Library expenses	... ..	10 0 0
3 19 0	Sundry expenses	... ..	14 9 0
3 6 0	Library list—Entomological Section	... ..	2 16 6
443 18 0	Publications Account	... ..	377 1 0
<hr/>			<hr/>
£891 16 5			£892 6 6
—	Transfer to Reserve Account	... ..	50 0 0
			<hr/>
			£942 6 6
6 18 1	Balance, 31st October 1952	... ..	50 2 6
<hr/>			<hr/>
£898 14 6			£992 9 0
<hr/>			<hr/>

ACCOUNT.

£529 12 5	Printing and Postages— <i>London Naturalist</i>	... ..	£378 13 0
	— <i>London Bird Report</i>	... ..	150 19 7
5 9 11	Christmas Cards	... ..	6 11 3
0 5 6	Sales Team expenses	... ..	—
<hr/>			<hr/>
£535 7 10			£536 3 10
<hr/>			<hr/>

ACCOUNT.

Balance, 31st October 1952	... ..	£43 7 6
		<hr/>

ACCOUNT.

Balance, 31st October 1952	... ..	£325 0 0
		<hr/>
		£325 0 0
		<hr/>

ACCOUNT.

Balance, 31st October 1952	... ..	£125 0 0
		<hr/>
		£125 0 0
		<hr/>

ACCOUNT.

Expenses	... ..	£4 0 0
Transfer to General Account	... ..	30 6 7
		<hr/>
		£34 6 7
		<hr/>

L. PARMENTER, Hon. Treasurer.

Official Reports for 1952.

Council's Report.

A NET increase of 160 members in 1952 has brought our membership on 31st October to a total of 1325, comprising 2 Honorary Members, 1099 Members, 178 School and Country Associates, 32 Branch Associates and 14 Affiliated Bodies. That this is a larger increase than usual is mainly due to an influx of new members in the Hounslow area, following the formation of the South West Middlesex Group. A full report of this interesting and important new development is given elsewhere, but here we would offer our thanks to all those who have already done so much for the Group: especially Mr. J. E. Dillingham, who first called together naturalists in the Hounslow district with a view to forming a local natural history society, and from the start has acted as Chairman; and Mr. R. E. Butler who was largely instrumental in guiding the Group into the Society and in organising the first programme; and Mr. F. J. Hebden who, as acting Secretary, has so successfully coped with the concomitant problems of the Group's early ontogeny. It is with very much regret that we learn that Mr. Hebden is going abroad and is so unable to continue his good work for the Group.

In spite of the rise in membership that we have been able to record each year since the war, ever rising costs, particularly of our publications, have again made necessary an increase in subscription rates. To soften the blow, however, certain exceptions have been made. The subscription is not increased for Members under 21 years of age, or for Members of the South West Middlesex Group: Chingford Branch Associates also retain their old rates, but lose their rights to free copies of the Society's journals; and a Family Membership scheme has been introduced. The alterations of Rules which these changes entail were approved at a Special General Meeting on 21st October and have been sent to all members.

Your Council's thanks are due to Mr. Parmenter for his able tenure of office as President for the past three years and for now assuming the onerous duties of Treasurer: so are they no less due to Mr. Peterken, who has relinquished the Treasurership, which he has held for four years, to become President. We have also to acknowledge the invaluable help already given by Mrs. Small, as Assistant Treasurer: the need for this new Office again calls attention to the ever growing volume of work falling upon the honorary officials of the Society. Mr. Currie has relinquished the Editorship of the *London Naturalist* to Mr. Payne, who has been assisting him for the past year and has thus had some opportunity of seeing how Mr. Currie has, for four years, so successfully produced an orderly journal out of manuscriptural chaos.

A change of Editor has also to be recorded for the *London Bird Report*, where again the increased volume of records calls for more work from the Editor than can reasonably be expected from one member. Mr. Wadley and Mr. Manser have thus jointly assumed the Editorship from Mr. Ashby, to whom we are so indebted for the fine job he

has made of the *London Bird Report* since 1947. We also have to thank Mr Ashby for continuing the Christmas Card scheme which is much appreciated by members and so beneficial to the Society's funds. Once again the Sales Team, directed by Mr. Ryall, has done good work in ensuring that the Society's publications are prominently displayed for sale at all our indoor meetings.

On some Tuesdays, in those few weeks during which no indoor meetings have been arranged, we have, for the past few years, filled the gap by holding "Library and Collection Meetings" at the London School of Hygiene. These meetings have been poorly attended. It has, therefore, been decided to discontinue them, for they do not warrant the demands made on the time of the Librarians and Curators.

We have to record, with very great regret, the deaths of the following members:—Mrs. Battley, C. S. Bayne, A. Capleton, Dr. M. Culpin, J. E. S. Dallas, W. E. Glegg, E. T. Hall, G. Carmichael Low, Miss J. D. MacIntosh, A. H. Spicer, and G. Talbot.

Chingford Branch Report.

During 1952 the Branch held either indoor or field meetings during each month. The attendance at indoor meetings was poor on most occasions, the average of 11 being due to two comparatively well-attended meetings. In contrast to this, field meetings were quite well supported, there being rarely less than 12 people present and on at least one occasion the number exceeded 20. In view of these facts it was decided to concentrate on field activities during 1953 particularly as the alteration in subscription rates and conditions seemed likely to produce loss of membership and possibly other complications.

At the Annual Meeting of the Branch Mr. B. T. Ward was re-elected as chairman and Mr. E. T. Nicholson as vice-chairman, with a council consisting of Messrs. E. A. Round, W. G. Vincent and E. B. Pinniger. At a later date Miss King kindly offered to take over the duties of secretary.

The grateful thanks of the Branch are due to Mr. W. B. Broughton, Mr. R. M. Payne, Mr. C. N. Hawkins and Dr. J. F. Hayward for interesting lectures, and to many other members for short communications and exhibits.

Although associate membership remains small a number of full members were again recruited through the branch during 1952 and a good number of full members take advantage of the Epping Forest field meetings.

BERNARD T. WARD, *Chairman*. E. B. PINNIGER, *Secretary*.

South West Middlesex Group Report.

A letter in the weekly local papers inserted by Alderman J. E. Dillingham proposing the formation of a local natural history society led to a public meeting being held at the Council House, Hounslow, on 25th February 1952. At this meeting it was decided to accept the invitation of the L.N.H.S. and form a self-contained group of the

L.N.H.S. operative in the South West Middlesex area, and a provisional committee was elected to take office until a general meeting in November.

Mr. R. E. Butler was elected programme secretary and produced a varied programme of indoor and field meetings, the latter being local as far as possible. The attendance for these averaged 25 and 15 respectively (including 3 rather wet days).

Since the inaugural meeting, membership has grown rapidly and now numbers 75 comprising 20 existing members of the L.N.H.S., 39 new members and 16 associates as well as 3 affiliated societies.

The year has been one of consolidation and getting to know one another; next year it is hoped that the Group will be able to contribute to the study of natural history in Middlesex.

An encouraging feature of the Group is the number of school associates enrolled; contact has also been made with local schools and it is hoped to encourage the youngsters with special meetings.

Our thanks are due to Messrs. D. H. Kent, R. W. Hale, C. W. Pierce, T. L. Bartlett and R. E. Butler for indoor meetings, and to Messrs. C. R. White, C. W. Pierce, R. E. Butler, R. H. Ryall, F. E. Wrighton, D. H. Kent, H. Spooner, Miss E. Goom and Miss M. Brown for leading field meetings.

J. E. DILLINGHAM, *Chairman*.

F. J. HEBDEN, *Secretary*.

Nature Conservation Committee's Report.

1952 has been another year of considerable activity and progress.

Mr. E. W. Groves is to be congratulated on the completion of his report on Nature Conservation in Surrey. Notes have been sent in by 57 contributors and his report amounts to over 60 pages of close typing and is accompanied by a one-inch-to-the-mile map of the county, coloured to show the boundaries of each of our 33 recommended areas. The report, including the maps, has been prepared and bound in triplicate, copies being thus made available to the Nature Conservancy, the Society's Nature Conservation Secretary and the Surrey representative. As mentioned last year, the Committee was dissatisfied with the inadequate treatment accorded by the Nature Conservancy to our Surrey recommendations north of the North Downs. This County report, much fuller than any previously available, should provide ample evidence to the Nature Conservancy for the need of scheduling further areas.

During the summer and late autumn, Mr. Groves, at the request of the Royal Society for the Protection of Birds and with the help of several local members, prepared a report on the birds of a well-wooded area in the Sydenham Hill district, threatened by building development, and support was given to the protest being organised by the Sydenham Hill and Rural Dulwich Protection Society.

Mr. Hyatt who, in June, succeeded Miss Franks as our Kent representative, has drawn up the draft of a preliminary report on the area which, it is hoped, will be submitted to the Nature Conservancy in the near future.

During 1952, the Essex Field Club, in a report to the Nature Conservancy, confirmed the importance of most of the localities mentioned in our Society's report of 1947, but were unable to supply any additional information. The Nature Conservancy subsequently asked our member, Mr. Lousley, to tour the county during the summer and to prepare a report, and this he completed later in the year.

The National Parks Act provides for the setting up of Nature Reserves by Local Authorities. It is, therefore, most satisfactory to be able to report that, as a result of the joint efforts of our Society and the Ruislip Natural History Society, thirteen acres at the north end of Ruislip Reservoir have been declared a nature reserve and that the Ruislip-Northwood Urban District Council has agreed to undertake its management. The local council is seeking advice from the Nature Conservancy on suitable methods of fencing and management and local naturalists have also been consulted. It is to be hoped that this difficult but important problem of proper management will be solved satisfactorily and that other local authorities will follow the enlightened action of the Ruislip-Northwood U.D.C.

The Society has been pressing for some years for the formation of a bird sanctuary in Holland Park and another gratifying outcome of the Society's efforts has been the consultation by the London County Council Parks Department with Mr. S. Cramp, our Middlesex representative, on the layout of the woodland area of Holland Park, now a public open space. The public are, however, restricted to fenced paths through this last remnant of semi-natural woodland in Central London. Undergrowth has been judiciously thinned and it is hoped that the area will serve as a bird sanctuary and that an increase in the bird population will result from the measures taken. The London County Council is appointing a member of the Society as their official bird observer for the area. The Council merit the thanks of the Society for this practical demonstration of their interest in, and sympathy with, bird protection in the public open spaces under their jurisdiction.

The Committee's Secretary has given two lectures on "The Conservation of Nature in the London Area" to the Ruislip Natural History Society on November 24th and to the South West Middlesex Group of the London Natural History Society on December 8th.

CYNTHIA LONGFIELD, *Chairman.*
C. P. CASTELL, *Secretary.*

Sectional Reports.

Archaeological Section.

Indoor Meetings. The Section has held four Indoor Meetings during the year. Stained Glass, from the historical and technical aspects, was the subject of an address on January 15th by Mr. Warren of Wm. Morris & Company. Mr. Talbot recalled the art and architecture which sprang from the Cistercian movement in a lecture on April 29th which was illustrated with many beautiful slides. Mr. T. L. Bartlett, B.A., M.B.O.U., on July 15th stressed the need for preserving ancient landmarks and names when describing some of the valuable work he has done in connection with the Harrow area. This was illustrated by many most interesting copies of old charters, prints, etc. Illustrating his talk on September 30th Mr. Wilfred Palmer showed his fine collection of lantern slides of miserere seats in churches and cathedrals from all parts of England. Dating from the early 13th Century, these are of good craftsmanship and cover an amazing range of subjects.

Outdoor Meetings. Eleven outdoor excursions took place during the year, with an average attendance of 25. Lambeth Palace and Parish Church were visited on January 26th, when a churchwarden from the Parish Church recounted many historical associations of the past, also pointing out the private chapel used by the Queen and her mother during the illness of our late sovereign. On February 16th, Miss Staines conducted a walk from Hyde Park Corner, recalling a few of the uses of the Park land, on through Mayfair, with its memories of John Wilkes, Nelson, its squares and visiting No. 14 Stanhope Gate. On March 15th Mr. B. T. Ward led an excursion to Chigwell with its interesting old Church and School. On April 19th about 16 members met at the Diana Fountain, Bushy Park. The Field Meeting Secretary gave a brief history of the Park and the Longford River. The party then followed the course of the river to the Plantation and on to Hampton. St. Albans House, Garrick Villa and Shakespeare's Temple were pointed out and a visit paid to Hampton Church. A bus was then taken to Hanworth where the Church and the remains of the Palace were visited. On May 31st Mr. F. V. Hallam, Secretary of the Islington Historical and Antiquarian Society conducted a tour of Islington, starting at the Angel, on to Highbury Corner. The party visited Canonbury Tower, Canonbury Square and a 17th century watch house on the New River near Tufnell Park Station. The beauties and interest of Eynsford were shown by Mr. Cocksedge on June 21st on a visit to the village with its ancient church and castle. On July 19th a party of about 30 visited St. John's Gate, Clerkenwell. Miss Edmunds, connected with the Order, gave a delightful account of the Order of St. John of Jerusalem and conducted us over the building. The visit concluded with a tour of St. John's Church. On September 20th Mr. H. W. Fayton conducted a party over St. Laurence Church, Little Stanmore. This was rebuilt in 1715 by the Duke of Chandos in the style

of a private chapel and contains paintings from floor to ceiling by Laguerre, also fine paintings by Bellucci and Verrio. An old organ behind the altar is thought to have been used by Handel, who was at one time chapel master to the Duke of Chandos, though not at this church. The modern glass represents the work of Handel. On October 18th the East End of London was visited under the leadership of the Chairman. After inspecting the exterior of the numerous old houses in Wellclose and Swedenborg (Princes) Squares in Stepney, the party proceeded along the quondam Ratcliff Highway to St. George's in the East and Shadwell Churches. The latter church had just been completely renovated and the Curate pointed out the Georgian details. The ramble terminated at the Edward VII Memorial Park at Shadwell where a magnificent prospect of the Pool of London presented itself. On November 15th Mr. Howlett conducted the party by Queen Anne's Gate, Downing Street, Horse Guards Parade, Whitehall, Parliament Square and on to Smith's Square, examining the exterior of a large number of 18th century buildings and houses. On 15th December he was again the leader of an excursion to the site of recent discoveries in the City of London.

Reading Circle. There are 18 subscribers to "Antiquity" and 12 to the "Archaeological News Letter".

Botanical Section.

Membership. The section has now 314 members, an increase of 49 during the year.

Indoor Meetings. Three General and three Sectional meetings were arranged, with an average attendance of 51.

Outdoor Meetings. Fourteen excursions were held with an average attendance of 14; some localities and plants seen are as follows:—
 Reigate—*Cephalanthera damasonium* (Mill.) Druce, *Ophrys muscifera* Huds., *Ajuga chamaepitys* (L.) Schreb. Abbey Wood, Kent—*Barbarea stricta* Andrz., *Bunias orientalis* L. Wimbledon Common—*Cynoglossum officinale* L., *Campanula rapunculus* L. Richmond Park—*Scutellaria minor* Huds., *Baldellia ranunculoides* (L.) Parl. Leatherhead—*Cuscuta europaea* L., *Phyteuma orbiculare* L., *Specularia hybrida* DC. Ruislip—*Alopecurus aequalis* Sobol., *Peplis portula* L., *Scutellaria minor* Huds. Brent reservoir—*Chenopodium glaucum* L., *Sanguisorba officinalis* L. Shoreham, Kent—*Atropa belladonna* L., *Ophrys apifera* Huds. Hayes and Keston—*Ceterach officinarum* DC., *Asplenium trichomanes* L., *Osmunda regalis* L.

Three of the meetings were arranged so as to be specially suitable for beginners, and each of these was well supported, with an average attendance of 20.

Botanical Exhibits. The committee wishes to draw the attention of members to the desirability of showing botanical exhibits at meetings. Specimens either dried or fresh, with a few words of explanation, are often of great help to the less experienced botanists.

Ecology. The section has continued to collaborate with the Ecological Section in the surveys at Bookham Common and at Cripplegate.

D. H. KENT, *Chairman.* F. E. WRIGHTON, *Secretary.*

Ecological Section.

Membership has increased by 21 to 237. The Section was responsible for the provision of one General Meeting—on January 1st when Mr. A. G. Leutscher lectured on “Some Epping Forest Mammals”. Four Sectional Meetings were held: November 27th, 1951, was devoted to Short Papers and Discussion on the Year’s Work at Bookham Common and at the City Bombed Sites; July 22nd, 1952, was devoted to Exhibits and Short Notes by Members. On April 1st, Mr. J. M. Fisher talked on “London’s Rats”, and on May 27th, Col. C. J. Bensley outlined the methods used and some of the results obtained by the Haslemere Natural History Society’s Survey at the Devil’s Punch Bowl, Hindhead.

The usual monthly Sunday meetings were held at Bookham Common, where the average attendance of 16 was an increase of 4 over last year and the highest since 1946. This increase is most satisfactory, occurring in a year when no joint meetings with other Sections have been held. There has been much less fluctuation in the monthly figures and the composition of the teams of workers has been more constant. Other gratifying features have been the formation of an enthusiastic team of botanical workers and their co-operation for much of the time with Mr. Rutledge in his investigations of the vegetation favoured by grasshoppers. To encourage collaboration further and to celebrate the completion of ten years’ work at Bookham, the first of what is hoped will be a series of duplicated Bulletins has been produced by Mr. Bangerter and made available to members. It summarises the work, both published and unpublished of the survey team, with appropriate references to the *London Naturalist* and mentions investigations both in progress and still requiring attention.

On the other hand, the three Saturday meetings in April, May and June were attended by an average of only 6 members (two less than last year) and the Committee has reluctantly decided to discontinue them.

Two other most successful field meetings were held. Col. Bensley and members of the Haslemere Natural History Society demonstrated the work of the local survey at the Devil’s Punch Bowl on Sunday, June 1st. In return, members of the Section were able to assist in the preparation of a transect of the vegetation across a stream valley.

The investigation, made last year, of the colonising of bare gravel by vegetation on Headley Heath was continued this year on Sunday, September 28th, and the programme was completed by an enthusiastic team in spite of a strong cold wind followed by heavy and continued rain in the afternoon.

Two Saturday visits, on April 26th and July 26th, were paid to the City Bombed Sites, under the leadership of Messrs. Curtie and Wrigh-ton. Periodical visits continue to be made by members at other times.

Thirty-three members subscribe to the Reading Circles for the *Journals of Ecology* and *Animal Ecology*.

The thanks of the Section are due to our retiring Librarian, Mr. A. J. M. Bailey, who, after serving for six years at great and increasing inconvenience to himself, felt compelled to resign owing to pressure of work. The Section is fortunate in securing a successor in Miss M. E. Kennedy.

G. BEVEN, *Chairman*. C. P. CASTELL, *Secretary*.

Entomological Section.

Judging from attendances, especially at indoor meetings, the Section can be said to have gained ground in 1952.

During the period covered by this Report we held four indoor meetings and organised one general meeting of the Society. On 5th February 1952 Mr. P. E. Purves gave a talk to the Society on The Use of Plastics in the Preservation of Biological Material, and on 25th March a discussion was opened by Mr. L. Parmenter on How to Start the Study of Insects. Three meetings were devoted to exhibits and short notes by members, on 18th December 1951 and 24th June and 23rd September 1952. The average attendance at Sectional indoor meetings was 28, an increase of 8 over the previous year.

Seven field meetings were held in 1952, at Boxhill, Oxshott, Wimbledon and Brookwood (Surrey), Halstow (Kent), Epping (Essex) and Panshanger (Herts.). Attendances varied between 4 and 17, the average being 8. The more interesting insects seen included the following:

Brookwood (11th May)—Coleoptera: *Epuraea depressa*, *Saprinus suturalis*, *Phytodecta olivacea*, *Tapinotus stellatus*, *Magdalis carbonaria*. Lepidoptera: *Callophrys rubi* and larvae of *Parascotia fuliginana*.

Epping Forest (24th May)—Coleoptera: *Tillus elongatus*, *Ptilinus pectinicornis*, *Donacia clavipes*, *Leiopus nebulosa*, *Corymbites tessellatus*.

Panshanger (29th June)—Coleoptera: *Leptinus testaceus* (in old Jackdaw's nest), *Silis ruficollis*, *Anobium punctatum*, *A. fulvicorne*, *Ochina ptinoides*, *Pogonochaerus hispidulus*, *Tetrops praeusta*, *Prionychus ater*, *Lissodema 4-pustulatum*, *Oedemera lurida*, *Asclera caerulea*, *Xylophila populnea*, *Brachysomus echinatus*, *Notaris scirpi*, *Acalles roboris*, *A. ptinoides*, *Stenocarus umbrinus*, *Ceuthorrhynchus angulosus*, *C. asperifoliarum*, *Drupenatus nasturtii*, *Balaninus venosus*, *B. nucum*, *B. rubidus*, *Rhyncholus lignarius*, *R. truncorum*, *Aleochara fumata*, *Quedius ventralis*, *Q. brevicornis*, *Q. microps*, *Anthobium atrocephalum*, *A. unicolor*.

Oxshott (20th July)—Coleoptera: *Cicindela sylvatica*.

Halstow (24th August)—Hymenoptera: *Colletes succincta* subsp. *halophilus*.

Boxhill (21st September)—Arachnida: *Atypus affinis* (Trap-door Spider).

We regret to have to record the deaths of Dr. K. G. Blair, Mr. J. E. S. Dallas and Mr. G. Talbot.

Membership of the Section rose by 13 during the year, and now totals 171.

After many years as reading-circle secretary Mr. H. J. Burkill was obliged through ill-health to relinquish this office, and a successor was found in Mr. D. G. Hall. Mr. D. A. Bennett and Mr. C. L. Collenette resigned from the committee, to which Mr. D. F. Owen and Mr. L. Parmenter were elected. Mr. J. F. Burton was co-opted during the year.

The number of subscribers to the reading-circle was maintained at 17. Binding of the magazines is proceeding satisfactorily.

C. G. M. DE WORMS, *Chairman*. R. M. PAYNE, *Secretary*.

Geological Section.

Membership of the Section has increased by 21 to 125, including 7 country associates and 3 school associates. Sixteen field meetings were held, including a five-day Easter meeting, at which the average attendance was 14. The Section was responsible for four indoor meetings when the average attendance of forty-two was an improvement over 1951.

A Geological Field Research Committee has been formed to co-ordinate the work of recording geological reserves, temporary geological exposures and other field work. Miss M. M. Brown was co-opted as Secretary to the newly formed committee and Mr. J. N. Carreck as Secretary for temporary geological exposures, while Mr. R. E. Butler has acted as Secretary for recording geological reserves.

Amongst the field meetings, that held at Weymouth during the Easter holiday was the most enterprising and successful. Twenty-two members attended and spent five days under the leadership of Mr. J. N. Carreck and Mr. B. Ainsley. Part of the programme was carried out by motor-coach along some of the most delightful stretches of coastline on the south coast. The Jurassic rocks were the main feature of the programme and many famous sections were examined from which large numbers of specimens were collected. Unfortunately, after completing the Saturday programme, Mr. Ainsley had to withdraw owing to illness but Mr. Carreck carried on as leader for the remainder of the meeting. A whole-day meeting was led to Folkestone in June by Mr. R. Casey of the Geological Survey while in the same month Mr. J. N. Carreck showed a party round Swanscombe. In July Walton-on-the-Naze was visited under the leadership of Mrs. Ainsley. Here the cliff section was found to be in good condition and many fossils were collected, including some of the rarer forms. At Godalming in September, under the guidance of Mr. G. F. Elliott, an interesting day was spent in examining sections in the Lower Greensand. One member, Mr. J. F. Wyley, was fortunate in finding an Ammonite (*Parahoplites nutfieldensis* (J. de C. Sow.)) at Kiln Copse (Valley of Leaves) where it had not been recorded

previously. Determination of the ammonite was confirmed by Mr. C. W. Wright to whom it was presented by the finder.

Half-day meetings were held to Wimbledon Common, the Mole Valley, Chertsey, Oxshott (twice), and Charlton. The Oxshott meetings were arranged with the object of observing and assisting the work now being carried out under the direction of Miss M. M. Brown who is making a special investigation of the London Clay at the Oxshott Brick and Tile Works pit as part of the work of the newly formed Geological Field Research Committee. The second of the two meetings was held jointly with the S.W. Middlesex Group.

The field meeting arranged for Charlton in March was abandoned because of snow, but was held later in the year. The day meeting to the Isle of Wight was not held as insufficient support was received by the date required in the programme. Twelve members who had intended going to the Isle of Wight took advantage of an invitation to join the Geologists' Association meeting held on the same day to the Stour Estuary under the direction of Mr. A. G. Davis and Mr. G. F. Elliott.

At a sectional meeting held in January Mr. K. A. Joysey spoke about methods of extracting fossils from their matrix in his lecture entitled "Fossils without Tears". To illustrate his lecture Mr. Joysey arranged an exhibit of specimens which members were able to examine at the end of the meeting. In March Mr. Ainsley gave a talk on "Geology of the Weymouth District" when he described, more particularly, the geology which would be seen on the Easter field meeting. At a general meeting in May Mr. A. G. Davis delivered his lecture "London's Snails and the Ice Age". In November Dr. W. S. Pitcher gave a lecture on "The London Clay" in which he dealt more especially with its relation to the Lower London Tertiary beds.

The thanks of the section are again due to those geologists who so willingly conducted field meetings and to the owners of quarries and works for permitting the Society to visit their properties.

C. P. CASTELL, *Chairman*. B. AINSLEY, *Secretary*.

Ornithological Section.

During the past year 92 new members have joined the Section bringing the total up to 920. We record with regret the deaths of Dr. G. Carmichael-Low, C. S. Bayne and W. E. Glegg; obituaries appear elsewhere in this issue.

Eleven indoor meetings, including two general meetings, have been held. Mr. Eric Hosking showed electronic flash photographs at a talk entitled "Birds in Action", and Dr. G. V. T. Matthews spoke on "Learning abilities of Birds". A joint meeting with The British Trust for Ornithology was held at the Royal Society of Arts. In a debate, Mr. P. H. T. Hartley proposed and Mr. Kenneth Williamson opposed the motion that "Island Bird Observatories are useless for the study of Bird Migration". The evening was concluded with a buffet supper. Mr. Eric Simms played some recordings of the "Songs and Calls of some

Rarer British Birds'', and at a general meeting Lord Alanbrooke showed four of his colour films. In an evening devoted to short papers Mr. N. J. P. Wadley spoke on ''Some Birds of Asia Minor'' and Mr. E. R. Parrinder described a week at Spurn.

The annual discussion of the work of the Section was held in June, followed in July by a general meeting on ''Field Identification of Birds'' by Prof. M. F. M. Meiklejohn. Two further meetings completed the year's programme: a second evening of short papers with Mr. J. F. Burton on ''The Birds of Dartford and Stone Marshes'', and Mr. Derek Goodwin on ''British Corvine Birds''; and two colour films made for the Royal Society for the Protection of Birds which were shown, with a commentary, by Mr. P. E. Brown.

This year Mr. H. F. Greenfield succeeded Mr. E. R. Parrinder as Chairman. Mr. H. A. Craw took over the office of minuting secretary from Mr. H. O. Jones. During the year several changes in the officers of the Section took place. Miss P. Whiddington became Librarian, Mr. A. H. Betts became Field Meetings Secretary, Mr. W. D. Park became Ringing Secretary and Mr. K. H. Hyatt became Curator. To Messrs. Simmonds, Beesley, Taylor and Hayman the Section offers its thanks for their hard work when they held these offices. Mr. E. R. Parrinder and Mr. S. Cramp resigned from the committee under the rules. At the Annual General Meeting Mr. Greenfield announced that he would be resigning the chairmanship and he and Mr. K. P. Keywood were elected to the committee.

The Records Committee has this year undergone a number of changes. Mr. C. B. Ashby, who has edited *The London Bird Report* most conscientiously and successfully for the past four years had asked to be relieved of the task and the Section wishes to express its appreciation to the outgoing Editor who literally changed the face of the *L.B.R.* While Mr. Ashby stays on the Records Committee, Mr. N. J. P. Wadley and Mr. G. E. Manser have taken over the duties of editorship jointly. The volume of records received from members continued to increase, and in June the Committee, after careful discussion, issued a circular asking contributors not to send in notes on certain regular species, except in special circumstances. Mr. J. F. Burton became Recorder for the South in place of Mr. Manser, and when Mr. A. Gibbs wished to give up as Recorder for the North his office was taken over by Mr. M. G. Ridpath.

Forty-four field meetings were held during the year, of which four were by coach. Visits to Tring, Staines, the Blackwater estuary and Pagham Harbour continued in popularity. Of the 145 species seen on field meetings, long-tailed duck, great northern diver, velvet scoter, black redstart, black tern, Slavonian grebe and a pair of ciril buntings were among the rarer birds encountered. Average attendance at these field trips was 20.

The number of members subscribing to the Reading Circles shows a slight increase on last year. *British Birds*, *The Scottish Naturalist*, *Auk*, *Bird Banding* and *The Ibis* circulate among a total of 128 mem-

bers. The extra copy of *The Ibis* has been made available by Miss Syms to whom our thanks are offered.

The Library has had 11 new books added, and the collection of skins has received one addition—a female Slavonian grebe.

Ringling totals have dropped somewhat this year despite an increase from 38 to 45 in the number of ringers. The figures were 2,645 compared with 4,112 last year. 800 fewer starlings were ringed in Trafalgar Square, and a number of the most active ringers were devoting more of their time to duties as officers of the section. A full statement of the ringling results will be found in *The London Bird Report*.

No new field enquiries were undertaken by the Section; but work has continued on black redstarts, little ringed plovers, great crested grebes and starlings. The watch on autumn migration across central London and the winter census of duck has been continued on the same lines as last year. Many members co-operated in a British Trust for Ornithology enquiry into the breeding distribution of a selected number of species and some 50 schedules were filled in representing about 40% of our area.

A reprint of the Field List Cards has been made. The price to members has had to be increased to 5d owing to higher printing charges. This year a new publication has been added to those already issued by the Section, namely, a quarterly Bulletin. This takes the form of a news-sheet and is available to all members price 1d. Work on "The Birds of the London Area, 1900-1950" continues to make steady progress.

H. F. GREENFIELD, *Chairman*. L. BAKER, *Secretary*.

Ramblers' Section.

There has been no increase in the membership of the Section during the year.

The programme provided for two Sectional and two General Meetings, and fourteen Field Meetings. At the first Sectional Meeting, Mr. Eades gave an account of his holiday in Galway, and Miss R. Davis gave her impressions of a recent visit to Spain, illustrating her talk with a cine-film of her own making. At the other Sectional Meeting Mr. R. C. Hodgson read a paper on his experiences as a volunteer worker at Agricultural Farm Camps, and Mr. D. Walker showed a first-rate coloured film entitled "Glimpses of the U.S.A."

The first of the General Meetings, held on 10th June, was devoted to a talk on Bermuda, by Mr. Rodney Cosser, illustrated by about 100 coloured slides which he had made on his several visits to the Bermudas.

At the second General Meeting of 7th October, Mr. Edlin of the Forestry Commission gave a talk, entitled Forestry and the National Forest Parks, which he illustrated with slides.

The Field Meetings arranged for visits to the following places:—

THE VICTORIA AND ALBERT MUSEUM where a lecture on Woodcuts and Engravings of Birds and Flowers was given by the official guide lec-

turer. In the Students' Room examples of drawings, engravings and illustrated books were displayed for inspection by the party.

KENSINGTON PALACE, WREN'S ORANGERY AND THE LONDON MUSEUM. The state rooms of the Palace were not available for inspection, but an interesting time was spent in the part of the building made over to the London Museum.

CANNAZARO, WIMBLEDON AND RICHMOND PARK. This excursion had to be abandoned owing to a very heavy fall of snow.

GERRARD'S CROSS TO BURNHAM BEECHES. The weather being fine there was a good attendance on this ramble.

BOXHILL AND NORBURY PARK, a joint ramble with B.E.N.A. Wild flowers in great variety were noted on this occasion, including Hound's-tongue (Common and Green-leaved), Tway-blade, Bird's-nest, Purple, Spotted and Green-man Orchids.

THE CITY, a mid-week evening ramble which was well attended. From Temple Station the party visited The Temple, the Strand, and the bombed sites near Cripplegate Church, where a Black Redstart was seen and heard singing.

IDE AND TOYS HILL. This ramble on one of the hottest days of the year was well attended and the fine views obtainable in this area were seen at their best and much enjoyed.

CLANDON PARK, the home of the Earl of Onslow. The house and its contents and the Maori curios in the garden were shown and described by the official guide who made the visit very interesting; tea was taken in the old kitchen in the basement of the house.

HODDESDON AND HERTFORD HEATH. This was new country to most members of the party, and the walk proved very enjoyable. During the walk a Kingfisher was seen at the Spital Brook, and a solitary specimen of the Star Thistle was found in a field near Anwell.

ESHER COMMONS AND CLAREMONT PARK. This excursion had to be curtailed owing to unfavourable weather. Many varieties of Fungi were, however, collected.

MCDUGALL'S FLOUR MILLS, a mid-week excursion to the mills at Millwall Dock, where members were conducted over the extensive premises and were shown the various processes of milling wheat and packing flour. From the top of the grain silos 120 ft. in height was obtained an impressive view of the Isle of Dogs.

DORKING TO GREAT BOOKHAM. The rich autumn tints were a feature of the landscape.

THE MIDDLESEX GUILDHALL. The party was received by the Public Relations Officer who gave an interesting talk on the history of the site on which the present building stands, and also explained the many activities carried on by the Middlesex County Council in the building, and the Court procedure.

WILLIAM MORRIS MUSEUM. In this house at Walthamstow is housed a collection of beautiful objects illustrating the life and work of William Morris, also a collection of pictures and miniatures by Sir Frank Brang-

wyn, R.A. On this occasion the visit was extended to the Walthamstow Museum of Local History, at the Vestry House.

The attendance at field meetings averaged 16, and with one or two exceptions the weather was very good.

READING CIRCLE. The Journal of Commons, Open Spaces, and Footpaths Preservations Society, The Countryman and Out-of-Doors, have been circulated to members of the Reading Circle.

LIBRARY. From a small surplus of money from the Reading Circle, five 1 in. Ordnance Maps have been purchased, and are now available in the Society's Library. These are (1) London S.E., (2) London N.W., (3) London S.W., (4) Aldershot, (5) Brighton and Worthing.

As intimated at the last Annual General Meeting, the Chairman finds it necessary to resign, having filled the office since the Section was reformed after the war. Owing to his taking up residence at Sidmouth, Devon, in the near future, the Secretary also finds it necessary to resign from his office which he has filled for the last three years.

H. SPOONER, *Chairman*. R. C. HODGSON, *Secretary*.

List of Members.

(Corrected up to 28th April 1953.)

It is particularly requested that Members will inform the Secretary as soon as possible of any change of address.

For list of abbreviations, see end.

Honorary President:

PROFESSOR H. MUNRO FOX, F.R.S.

Honorary Vice-Presidents:

S. AUSTIN, F.Z.S. E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S. F. G. DELL.
A B. HORNBLOWER. OLIVER G. PIKE, F.Z.S., Hon. F.R.P.S., F.I.B.P. J. ROSS.
L. J. TREMAYNE.

Honorary Members:

- 1933 Bryce, E. J., Nelson Road, Killara, Sydney, N.S.W. (Zoo.)
1927 Clanchy, Mrs. B. L., Westminster Bank, Harrow-on-the-Hill, Middx.
(Orn., R.)
* 1925 Dallas, Mrs. Rosa F., 29 Clinton Road, Leatherhead, Surrey. (Arch.,
Bot., Ecol., Geol., Orn., R)
1927 Le Souef, A. S., C.M.Z.S., R.A.O.U., Taronga Zoological Park, Sydney,
N.S.W.
1935 Whitaker, F. O., 51 Grosvenor Avenue, Carshalton. (Bot., Ecol., Pl. G., R.)

Members:

H denotes membership of the Southwest Middlesex Group.

* Signifies a Life Member.

- 1946 Absolon, Miss E. M., 23 Netherlands Road, New Barnet, Herts. (Bot., Ent.)
1929 Acland, Miss C. M., M.B.O.U., 2 Orchard Close, Banstead, Surrey. (Orn.)
1953 Adams, Mrs. E. M., 158 Westbourne Grove, W.11. (Bot., Orn.)
1946 Adams, Mrs. J. M., B.Sc., F.Z.S., 43 Merchland Road, New Eltham, S.E.9.
(Bot., Orn.)
H 1950 Adams, Miss N. G., Park Gate, 47 Vicarage Road, Hampton Wick, King-
ston-on-Thames, Surrey. (Orn.)
1952 Adamson, N., c/o Miss Money, 1 Lower Common South, Putney, S.W.15.
(Orn.)
H 1946 Ainsley, B., F.G.S., 16 Belmont Road, Twickenham, Middx. (Geol.)
1950 Allain, A. M., Alderton Hall, Alderton Hill, Loughton, Essex. (Bot.,
Ecol., Ent., Orn.)
1944 Allden, Miss B. J., 110 The Ridgeway, Enfield, Middx. (Orn., R.)
1947 Alder, R. C., 32 Preston Road, Wembley, Middx. (Orn.)
* 1939 Allen, Miss D., address not known.
1953 Allen, Miss D. M., Cedars, Furzedown College, Welham Road, Tooting,
S.W.17.
1951 Allen, Miss N., 38 Greenway, Totteridge, N.20. (Arch., Orn., R.)
1947 Almond, Miss G. M., 26 Roy Road, Northwood, Middx. (Bot., Geol., Orn.)
1937 Alston, A. H. G., B.A., F.L.S., British Museum (Natural History), Crom-
well Road, S.W.7. (Bot.)
1953 Alway, C. J., 20 Calder Avenue, Perivale, Middx. (Orn.)
H 1952 Anderson, Dr. A., 725 Bath Road, Hounslow, Middx.
1949 Anderton, Miss M., 148 Regal Way, Preston Road, Middx. (Bot., Geol.)
1946 Andrews, H. E., 48 Fanshawe Avenue, Barking, Essex. (Ecol., Orn.)
1932 Angell, Miss K. W., Stockwell College, The Old Palace, Bromley, Kent.
(Bot., Ecol., Ent., Orn., Pl. G., R.)

- 1948 Anscombe, Mrs. J. M., 28 Norland Square Mansions, Norland Square, Holland Park Avenue, W.11. (Bot., Orn.)
- 1946 Archer, Miss E. M., 95 Church Road, Wimbledon. S.W.19. (Orn.)
- 1942 Archer, H. A., 76 Endlebury Road, E.4. (Orn.)
- 1952 Archer, Miss M. O., Helen Graham House, Great Russell Street, W.C.1. (Orn.)
- 1945 Ardley, M., "Valletta", West Belvedere, Danbury, Essex. (Fr. water and marine life. Orn.)
- 1950 Armstrong, P. O., c/o Lloyds Bank, Teddington, Middx. (Bot., Ent., R.)
- 1951 Arnold, A. A. J., 3 St. George's Avenue, Kingsbury, N.W.9. (Orn., R.)
- 1952 Arnold, H. J., 31 Melbury Avenue, Southall, Middx.
- 1939 Ashby, C. B., M.B.O.U., 31 Tudor Close, Cheam, Surrey. (Ecol., Orn.)
- 1946 Ashley, R. S., 32 Warminster Road, South Norwood, S.E.25. (Lep., Orn.)
- 1951 Ashmole, N. P., 19 Craven Hill, W.2, and at Bryanston School, Blandford, Dorset. (Orn.)
- 1952 Atkin, D., 308 Goldhawk Road, London, W.12.
- 1952 Attfield, Miss M. M., 20 Porden Road, Brixton Hill, S.W.2. (Arch., Bot., Orn.)
- 1952 Atwell, Miss E. R., 23 Montpelier Row, Blackheath, S.E.3.
- 1892 Austin, S., F.Z.S., 43 Darenth Road, N.16. (Arch., Bot., Ecol., Orn., R.)
- 1948 Avery, E. J., 20 Bramley Road, Sutton, Surrey. (Orn.)
- H 1952 Bachrach, Mrs. Helen V., 44 Sutton Lane, Hounslow, Middx. (Bot., Ent., Orn.)
- 1952 Backhurst, G. C., 138 Elibank Road, Eltham, S.E.9. (Orn.)
- * 1929 Bagnall, R. S., D.Sc., F.R.S.E., 33 Park Parade, Harrogate, Yorks. (Bot., Ent., Pl. G.)
- 1944 Bailey, A. J. M., B.Sc., F.R.I.C., 45 Denham Crescent, Mitcham, Surrey. (Bot., Ecol.)
- 1946 Bailey, J. A., 40 Ivanhoe Drive, Kenton, Middx. (Ent., Orn.)
- 1952 Bailey, J. S., Perry Down Cottage, Eynsford, Kent. (Herp., Orn.)
- 1950 Bailey, Miss S. A., 83 Eden Way, Beckenham, Kent.
- 1946 Bak, F. A., "Craigmore", 46 Holmfield Road, Leicester. (Orn.)
- 1948 Baker, L., 5 Hanger Court, Hanger Green, Ealing, W.5. (Orn.)
- 1950 Baker, M. F. B., 24 Bramshill Gardens, N.W.5. (Orn.)
- 1953 Baldwin, Miss G., 262 South Norwood Hill, S.E.25. (R.)
- 1941 Ballingall, N. C., 120 Cranmer Court, S.W.3. (Orn.)
- H 1952 Bamford, T. W., Borough Road College, Isleworth, Middx. (Geol.)
- 1952 Bancroft, F., 24 The Drive, Goffs Oak, Waltham Cross, Herts. (Bot., Ent., Orn.)
- 1952 Banfield, J. G., 148 Edenbridge Road, Bush Hill Park, Enfield, Middx. (Arch., Orn.)
- 1947 Bangerter, E. B., 51 Springfield Avenue, Muswell Hill, N.10. (Bot., Ecol.)
- H 1934 Banks, H., 64 Queenswood Avenue, Hounslow, Middx. (Bot., Ecol., Geol., Orn.)
- 1947 Barclay, C. G., Fanshaws, Hertford. (Orn.)
- 1951 Barfield, Miss A. J., 80 Shrewsbury Avenue, Kenton, Harrow, Middx. (Bot., Ecol., Ent.)
- 1946 Barker, Miss P. M. W., 232 Cannon Lane, Pinner, Middx.
- H 1952 Barker, Miss R., Copper Hall, Watts Road, Thames Ditton, Surrey. (Ent., Orn.)
- 1926 Barnes, Mrs. E. C., M.B.O.U., F.Z.S., Hungerdown, Seagry, Wilts. (Bot., Ecol., Orn.)
- 1951 Barren, Mrs. J., Denton Ward, Black Motley Hospital, Braintree, Essex. (Orn.)
- 1952 Barrett, Miss M. A., 24 Ennismore Gardens, S.W.7. (Arch.)
- * 1941 Barrington, F. J. F., 52 Harley Street, W.1. (Orn.)
- 1950 Barrow, Miss J. S., Killigarth, 39 Riddlesdown Road, Purley, Surrey. (Orn.)
- 1949 Bartlet, A. W., 35 The Knoll, Hayes, Bromley, Kent. (Orn.)
- 1941 Bartlett, T. L., B.A., M.B.O.U., 91 Woodend Avenue, Roxeth, Harrow, Middx. (Ecol., Orn.)

- 1951 Barton, Miss M., 38 Swyncombe Avenue, Ealing, W.5.
 1951 Bass, H. G. M., 43 Oakwood Avenue, Beckenham, Kent. (Orn.)
 1952 Bates, W., The Limes, Fitzroy Park, Highgate, N.6. (Orn.)
 1948 Baxter, Miss V. H., 39 Church Vale, East Finchley, N.2. (Orn.)
 1946 Beal, N. A. G. H., address not known. (Orn.)
 1943 Beamish, A. J., 101 Ridgmount Gardens, W.C.1. (Orn.)
 1947 Beattie, Mrs. M. G., 86a Portland Place, W.1. (Orn.)
 1946 Beazley, His Honour Judge Sir Hugh, J.P., Bell Lane House, Broxbourne, Herts. (Orn.)
 1952 Bedford, J., 6 Lordship Park, Stoke Newington, N.16. (Bot., Orn.)
 1946 Bedford, W. D., F.R.E.S., The Ferris, Mill Lane, Broxbourne, Herts. (Orn.)
 1952 Bedworth, Miss M. C., 9 Ranworth Mansions, 23 Compayne Gardens, N.W.6.
 1949 Bengeri, V. L., address not known. (Arch., Geol.)
 1946 Bennett, Miss E. A., 16 Inchmery Road, Catford, S.E.6. (Ecol., Orn.)
 1952 Bennett, Miss H. M., 8 Lawrence Mansions, Lawrence Street, Chelsea, S.W.3. (Bot., Orn.)
 1948 Bennett, Miss M., 167 Farley Road, Selsdon, South Croydon, Surrey. (Ecol., Orn.)
 1949 Bennett, Miss M. E., 10 Clarence Road, Teddington, Middx. (Bot., Orn.)
 1952 Bennett, W. H., 7a Blomfield Place, Paddington, W.2. (Bot., Orn.)
 1946 Bensley, Lt.-Col. C. J. F., 2 Heatherlands, Grayshott, Hindhead, Surrey. (Conch., Ecol., Ent., Geol.)
 * 1929 Benson, R. B., M.A., F.R.E.S., Mem. Hon. Soc. Ent., Belg., British Museum (Natural History), S.W.7. (Bot., Ecol., Ent., esp. Sawflies, Orn., Pl. G., R.)
 1932 Bentham, C. H., Eothen, 11 Epsom Lane South, Tadworth, Surrey. (Orn.)
 1951 Berry, J. F., 23 St. Peter's Avenue, Woodford New Road, Walthamstow, E.17. (Orn.)
 1937 Best, Miss M. G., M.R.C.S., L.R.C.P., 115 Widmore Road, Bromley, Kent. (Orn.)
 1952 Bethune, A., 21 Victoria Grove, W.8. (London History, Orn.)
 1949 Betts, A. H., 143 Crofton Road, Orpington, Kent. (Orn.)
 1940 Beven, G., B.Sc., M.B., B.S., M.R.C.S., M.B.O.U., Cromer Hyde, Central Road, Morden, Surrey. (Ecol., Orn.)
 1950 Billington, Miss U., 3 Brunswick Mansions, Handel Street, W.C.1. (Ent., Orn.)
 1941 Bispham, T., B.Sc., A.I.C., 14 Alleyn Park, Norwood Green, Southall, Middx. (Orn.)
 1952 Blachford, K. C., 26 Fryston Avenue, Croydon, Surrey. (Orn.)
 1950 Blackmore, M., F.Z.S., 80 Nicholl House, Woodberry Down, N.4. (Mam., Orn.)
 H 1953 Blade, Miss V. I., 60 King Edward's Grove, Teddington, Middx. (Orn.)
 1937 Blake, F. W., 16 Lindsay Road, Worcester Park, Surrey. (Orn.)
 1952 Bland, P. E. R., 5 Aylmer Road, Shepherd's Bush, W.12. (Orn.)
 1952 Bliss, A. R. H., "Briar Mead", 131a Albert Road, Epsom, Surrey. (Ent.)
 1953 Bobe, K. H., 19 Hengist Road, Lee, S.E.12. (Ent., esp. Dip.)
 1946 Boggis, Miss L., 60 Shuttleworth Road, S.W.11. (Arch., Geol., Orn., R.)
 1952 Bohun, F. J., 11 Halstead Road, Winchmore Hill, N.21. (Orn.)
 1947 Boniface, R. A., 5 Grosvenor Road, Chiswick, W.4. (Bot.)
 1950 Booth, J. B., 18 Lancaster Gate, W.2.
 1952 Bourne, Miss M. R., 23 Vincent Road, Cobham, Surrey. (Bot., Orn.)
 1952 Bourne, W. R. P., Abernethian Room, St. Bartholomew's Hospital, E.C.1. (Orn.)
 1953 Bowness, F. W., 15 Chapman Street, St. George's, E.1. (Bot.)
 1953 Bowman, Miss S. M. P., Lindsell Hall, 35 Adamson Road, N.W.3. (Orn.)
 1953 Bowness, F. W., 15 Chapman Street, St. George's, E.1. (Bot.)
 H 1952 Boxall, Miss D., 6 Byron Avenue, Cranford, Hounslow, Middx. (Bot., Orn.)

- 1952 Boyle, Lt.-Colonel C. L., 34 Steeles Road, Hampstead, N.W.3. (Wild Life Preservation)
- 1949 Boys-Stones, P., 7 Burnaby Road, Bedford. (Orn.)
- 1945 Braby, C., 5 Arundel Street, W.C.2. (Orn.)
- 1946 Bradbrooke, Mrs. J., 34 West Hill Court, Millfield Lane, N.6. (Orn.)
- 1951 Braham, Miss L., 16 Wycombe Gardens, N.W.11. (Orn.)
- 1932 Braithwaite, Miss D. M., 18 Warren Road, E.4. (Orn.)
- 1946 Brewer, Mrs. W., 120 Parkside Avenue, Barnehurst, Kent. (Orn.)
- 1937 Brightwell, L. R., F.Z.S., 1 Edith Avenue, Peacehaven, Sussex. (Marine Life)
- 1951 Briscoe, Miss E. J., 58 Fairlawn Grove, Chiswick, W.4.
- 1946 Britten, R. O., 21 Tollers Lane, Old Coulsdon, Surrey. (Orn.)
- 1952 Bronner, Miss E., 171 Holly Lodge Mansions, Highgate, N.6. (Arch., Orn.)
- 1937 Brown, Miss B. E., Gresham Cottage, Granville Road, Limpsfield, Surrey. (Ecol., Orn.)
- 1950 Brown, D. A., 63 Montagu Road, Hendon, N.W.4. (Orn.)
- 1952 Brown, Miss E. A., 78 Cheviot Road, West Norwood, S.E.27. (Bot., Ecol., Ent., Orn.)
- 1932 Brown, Miss E. P., The Cowdray Club, 20 Cavendish Square, W.1. (Orn.)
- 1948 Brown, K. M. E., 66 Clitherow Avenue, Boston Manor, Hanwell, W.7. (Orn.)
- 1952 Brown, M. B., The Elms, 30 St. James' Drive, S.W.17.
- 1948 Brown, Mrs. M. E., 66 Clitherow Avenue, Boston Manor, Hanwell, W.7. (Orn.)
- * 1947 Brown, Miss M. M., 27 The Pleasance, Putney, S.W.15.
- 1952 Brown, Miss M. M., 22 Elmwood Avenue, Harrow, Middx. (Geol.)
- 1950 Brown, Miss P. M. B., Talbot House, 42 Trinity Square, E.C.3.
- 1953 Browning, Miss E., 203 Chase Side, Enfield, Middx. (Arch., Ecol., Zool.)
- 1951 Bruhn, J. F. W., 25 Hill Top., Golders Green, N.W.11. (Orn.)
- 1948 Buckell, L. E., The Hatch, Epsom Road, Leatherhead, Surrey. (Bot., Lep., R.)
- 1952 Bullard, P., 51 Cumberland Drive, Bexley Heath, Kent. (Orn.)
- 1950 Bullock, Mrs. M. F., 28 Deanhill Road, East Sheen, S.W.14. (Orn.)
- 1936 Burd, L. H., College Hall, Dean's Yard, S.W.1. (Ecol., Ent., Orn.)
- * 1930 Burgham, Miss J. E., Downs House, Netherne Hospital, Coulsdon, Surrey. (Geol., Orn., R.)
- 1915 Burkill, H. J., M.A., 3 Newman's Court, Cornhill, E.C.3. (Bot., Ecol., Geol., Lep., Orn., Pl. G., R.)
- 1952 Burness, G. F. G., 38 Wellhouse Road, Beckenham, Kent. (Orn.)
- 1943 Burt, Miss E. H., 216 Lower Farnham Road, Aldershot, Hants. (Geol., R.)
- 1949 Burton, B. E., 61 Burlington Avenue, Kew Gardens, Surrey. (Ecol., Orn., R.)
- 1951 Burton, D. B., 33 West End Court, Priory Road, Hampstead, N.W.6. (Orn.)
- 1946 Burton, J. F., F.R.E.S., 43 Eversley Road, Charlton, S.E.7. (Lep., Orn.)
- 1949 Burton, M., D.Sc., F.L.S., British Museum (Natural History), Cromwell Road, S.W.7.
- 1952 Burton, P. J. K., 23 Cornwall Road, Stroud Green, N.4. (Orn.)
- 1952 Bushby, E. D., 45 Cleveland Gardens, Barnes, S.W.13. (Orn.)
- H** 1948 Butler, R. E., B.Sc., 133 Lower Morden Lane, Morden, Surrey. (Bot., Geol.)
- 1937 Butlin, Major J. H., c/o 90 East Sheen Avenue, S.W.14. (Orn.)
- 1953 Byerley, B. L. J., F.R.E.S., 48 Elmgrove Road, Harrow, Middx. (Ent.)
- * 1947 Cadbury, J. C., "Beaconwood", Rednal, Birmingham. (Orn.)
- 1932 Caiger-Smith, Miss J., Ibstock Place, Clarence Lane, S.W.15. (Orn.)
- 1952 Calway, T. J., 121 Elibank Road, Eltham, S.E.9. (Orn.)
- 1953 Cameron, S. J., 77 Addison Road, Holland Park, W.14. (Orn.)
- * 1928 Campbell, J. M. H., M.D., 47 Arkwright Road, N.W.3. (Orn.)
- 1949 Campbell, Miss M. L., 15 Trinity Rise, Tulse Hill, S.W.2. (Orn.)
- 1947 Carreck, J. N., F.G.S., 10 Palace Grove, Bromley, Kent. (Arch., Ecol., Geol.)
- 1952 Carter, D., 25 Myatt Road, Brixton, S.W.9. (Orn.)

- 1952 Carter, Miss D. M., Boyle Cottage, Church Lane, Thames Ditton, Surrey. (Orn.)
- 1932 Castell, C. P., B.Sc., F.G.S., 52 Graham Road, S.W.19, and at British Museum (Natural History), Cromwell Road, S.W.7. (Arch., Bot., Conch., Ecol., Geol., Orn., R.)
- 1945 Chalke, S. H., 20 South Drive, Cheam, Surrey. (Ecol., Orn.)
- H 1952 Chamberlin, P. N., 4 Woodside Road, Kingston-on-Thames, Surrey. (Bot., Geol.)
- 1952 Chambers, J. A., 55 Grantock Road, Walthamstow, E.17. (Orn.)
- 1946 Chambers, Miss R. C., 1 Manor Close, Mill Hill, N.W.7. (Orn.)
- 1950 Chambers, R. H., 34 Marlborough Lane, Charlton, S.E.7.
- 1950 Champtaloup, Miss A. Y., B.A., M.B.E., 2 Gordon Square, W.C.1. (Orn.)
- 1952 Chandler, F., 8 Sandal Road, Edmonton, N.18. (Ecol., Orn.)
- 1930 Chandler, S.E., D.Sc., F.L.S., 59 Anerley Park, Penge, S.E.20. (Bot., Ecol.)
- H 1951 Chaplin, Miss M., 38 Belgrade Road, Hampton-on-Thames, Middx. (Bot., Geol., Orn.)
- 1952 Chapman, E. C., 4 Malbrook Road, Putney, S.W.15.
- 1948 Chapman, G. M., High Grange, Dalwood Hill, near Axminster, Devon. Temporary London address—9 Townley Road, Dulwich, S.E.22. (Geol., Orn.)
- 1949 Chapman, Miss L., 7 Acland Crescent, Denmark Hill, S.E.5. (Bot., Orn.)
- 1952 Chapman, R. F., F.R.E.S., 16 Buckhurst Way, Buckhurst Hill, Essex. (Ent.)
- 1948 Chappell, Col. H. J., O.B.E., M.C., T.D., 24 Hillcrest Road, Loughton, Essex. (Orn.)
- 1947 Chard, W. E., F.R.M.S., M.B.O.U., "Rorke's Drift", 47 Beckenham Road, West Wickham, Kent. (Orn.)
- 1952 Charity, G. B., 28 Belgrave Court, Chiswick, W.4. (Orn.)
- 1947 Charlton, Miss M. W., 61 Streatham Close, Leigham Court Road, Streatham, S.W.16. (Bot., Ecol.)
- 1952 Charlton, Miss N., 11 Mycenae Road, Blackheath, S.E.3. (During School term: Farringtons, Chislehurst.) (Bot.)
- 1949 Charter, G. B., Ashlyn's Cottage, Lybury Lane, Redbourne, Herts. (Orn.)
- 1949 Charter, Mrs. R. E., Ashlyn's Cottage, Lybury Lane, Redbourne, Herts. (Orn.)
- 1946 Chave, S. P. W., 15 Glenhurst Rise, Beulah Hill, S.E.19. (Orn.)
- 1951 Chettleburgh, M. R., 45 Hazelbrouck Gardens, Hainault, Ilford, Essex. (Orn.)
- 1953 Clark, Miss G. M., Isotope Laboratory, Royal Cancer Hospital, Fulham Road, S.W.3. (Orn.)
- 1953 Clark, B. H., 26 Waldegrave Road, Hornsey, N.8. (Orn.)
- 1951 Clark, Miss H. S., 29 Sandringham Road, Wood Green, N.22. (Orn.)
- 1948 Clark, L. L., 80 Castelnau, Barnes, S.W.13. (Orn.)
- 1952 Clark, Miss M., 9 Downside Crescent, N.W.3. (Arch.)
- 1952 Clinch, Miss H., 3 Lombard Avenue, Seven Kings, Ilford, Essex. (Geol.)
- 1950 Clinkskel, P. G., 40 Blakes Avenue, New Malden, Surrey. (Orn.)
- 1950 Cloudsley-Thompson, Dr. J. L., M.A., F.R.E.S., F.L.S., F.Z.S., 10 Lower Green Road, Esher, Surrey. (Arch., Ecol., Ent.)
- 1929 Coates, Miss N. H., Woodhouse, Beaumont Road, S.W.19. (Bot., Orn.)
- 1904 Cockayne, E. A., M.A., D.M., F.R.C.P., F.R.E.S., 8 High Street, Tring, Herts. (Biol., Lep.)
- 1925 Cocksedge, W. C., 6 Aldersmead Road, Beckenham, Kent. (Arch., Bot., Ecol., Geol., Orn.)
- 1952 Codrington, Lt.-Col. J. A., 22 Eaton Mews South, S.W.1. (Bot.)
- 1947 Cohen, C. S. M., 48 Keyes Road, Cricklewood, N.W.2. (Orn.)
- 1952 Cole, Dennis N., 15 Wendover Road, Bromley, Kent. (Arch., Bot.)
- 1907 Collenette, C. L., F.R.G.S., F.R.E.S., Abinger Hall, near Dorking, Surrey. (Api., Bot., Ecol., Ent., Orn.)
- 1936 Collett, R. L., 165/20 Abbey Road, N.W.8. (Orn.)
- 1948 Collett, T. G., 6 Kent Avenue, Ealing, W.13. (Bot., Orn.)
- 1952 Colley, Major J. B., 2 The Windmill, Wimbledon Common, S.W.19.

- 1948 Collis, Miss M. M., Southlands College, 65 Wimbledon Parkside, S.W.19. (Ecol., Geol.)
- 1952 Combes, Mrs. J. D., 22 Russell Road, Mitcham, Surrey. (Orn.)
- 1951 Comerford, J., Flat 8, 85 West Hill, Putney, S.W.15. (Orn.)
- 1948 Connolly-Brooks, Miss H., Digby-Stuart College, Roehampton, S.W.15. (Bot.)
- 1948 Connolly-Brooks, Miss W., 314 Manchester Road, Warrington, Lancs. (Bot.)
- 1946 Conway-Morris, R., 2 Lismore, Woodside, Wimbledon, S.W.19. (Ent., Orn.)
- 1938 Cooper, J. M., Fairview, 48 Higher Drive, Purley, Surrey. (Orn.)
- 1952 Cope, J. L., 62 Westover Road, Wandsworth Common, S.W.18.
- 1953 Corble, D. G., 43 West Cromwell Road, S.W.5. (Arch., Geol.)
- 1952 Cordero, R. P., 17 Wyvern Road, Purley, Surrey. (Bot., Orn.)
- 1950 Cornall, D. F. J., 144 Phyllis Avenue, Motspur Park, New Malden, Surrey. (Orn.)
- H 1952 Cotton-Sims, L. J., 33 Heath Road, Hounslow, Middx. (Orn.)
- 1952 Cox, D. A., 45 Cumnor Road, Sutton, Surrey. (Geol., Orn.)
- 1942 Cramp, S., M.B.O.U., 9 Queen Court, Queen Square, W.C.1. (Ecol., Orn.)
- H 1947 Cranston, R. W., B.Sc., Bywater Cottage, 210 Thames Side, Laleham, Middx. (Orn.)
- 1947 Craw, H. A., 30 Cranley Gardens, S.W.7. (Orn.)
- 1953 Croad, I. J., Flat 24, 136 Queenstown Road, Battersea, S.W.8. (Orn.)
- 1947 Croft, Mrs. E. G., Linden Cottage, Ockham Road, East Horsley, near Leatherhead, Surrey (Orn.)
- 1948 Crook, Mrs. V. M., "Wych", Dukes Avenue, Rayners Lane, North Harrow, Middx. (Orn.)
- 1950 Cross, J. J., address not known. (Orn.)
- 1950 Cross, Mrs. J. J., address not known. (Orn.)
- H 1949 Crouch, E. L., 1a New Broadway, Hampton Hill, Middx. (Orn.)
- 1951 Crowe, R. W., Grey Tree, South Nutfield, Surrey. (Orn.)
- 1951 Cubitt, S., 58 Rickmansworth Road, Pinner, Middx. (Orn.)
- 1953 Culverwell, Miss J., The Library, Westminster Hospital, S.W.1, and 2a Argyll Road, W.8.
- 1951 Cummings, Miss S., 19 Fitzjames Avenue, East Croydon, Surrey.
- 1946 Cunha, Roy da, 2 Grove House, Epsom, Surrey. (Orn.)
- 1928 Cuninghame, Miss D. W. M., c/o Mrs. Lingard, Fellside, Windermere, Westmorland. (Bot., Ecol., Ent., Orn., Pl. G.)
- * 1936 Currie, P. W. E., F.R.E.S., 102 Burdon Lane, Belmont, Sutton, Surrey. (Ecol., Ent., Orn.)
- 1951 Curtis, A. S., 17 Parkhill Road, Hampstead, N.W.3. (Ecol., Geol.)
- 1946 Curtis, Miss M., 16 Grove Terrace, N.W.5. (Orn.)
- 1947 Dack, Miss Phyllis, 26 The Quadrangle, Herne Hill, S.E.24. (Bot., Orn.)
- 1947 Dagger, The Rev. J. H. K., National Provincial Bank Ltd., Newport, Shropshire. (Temporary address, c/o Whitton Vicarage, Twickenham, Middx.) (Orn.)
- 1952 Daly, Mrs. D., Lincoln House, 7 Basil Street, S.W.3. (Orn.)
- H 1952 Daniels, Miss E. Y., 22 West Court, Great West Road, Hounslow, Middx. (Bot., Orn.)
- 1952 Dann, H., 25 Muswell Hill Road, N.10. (Bot., Orn.)
- 1940 Darlington, Miss I., M.A., 22 Addison Way, N.W.11. (Arch., Bot., Ecol., Orn.)
- 1951 Davidson, A. F., Fairmead, Waterside, Lingfield, Surrey. (Orn.)
- 1933 Davies, Miss E. B., 4 Meadway Close, N.W.11. (Ent., Orn.)
- 1944 Davies, Mrs. H. R., (to await arrival) c/o 112 Coleherne Court, S.W.5. (Bot., Orn.)
- 1951 Davies, O. J. H., The Oak House, Crossways, Shenfield, Essex. (Ecol., Orn.)
- 1946 Davis, A. G., F.G.S., 75 Croydon Road, Anerley, S.E.20. (Bot., Conch., Ecol., Ent., Geol.)
- 1948 Davis, Miss A. M., 125 Holbein House, S.W.1. (Ent., Orn.)

- H 1953 Davis, Miss M. M., 23a Woodgrange Avenue, Ealing, W.5.
 1932 Davis, Miss R., 118 College Road, S.E.21. (Bot., Orn., R.)
 1949 Davis, Miss S. J., 73 Parkview Court, S.W.6. (Orn.)
 1951 Day, Miss S. R., F.R.G.S., 47 Argyll Road, W.8. (Bot., Orn.)
 1953 Dean-Brown, Miss, Matron's Office, King's College Hospital, Denmark Hill, S.E.1.
 1950 Dear, Miss K. M., 65c Belsize Park Gardens, N.W.3. (Ent., R.)
 1951 Dehn, Paul, 19 Bramerton Street, Chelsea, S.W.3. (Orn.)
 1910 Dell, F. G., "Buckhurst", South Weald Road, Brentwood, Essex. (Micr., Orn., P.L.)
 1949 Delves, H. C., M.T.P.L., A.R.I.C.S., c/o W. R. Davidge & Partners, 5 Victoria Street, Westminster, S.W.1. (Arch., Geol.)
 1952 Denyer, E. R., A.I.C.S., 101 Edenfield Gardens, Worcester Park, Surrey.
 1946 de Worms, Baron Charles G. M., M.A., Ph.D., A.I.C., F.R.I.C., F.R.E.S., M.B.O.U., Three Oaks, Shore's Road, Horsell, Woking, Surrey. (Lep., Orn.)
 1951 Dickinson, P. W., 20 Willow Road, Hampstead, N.W.3. (Orn.)
 H 1952 Dillingham, J. E., 12 Ivanhoe Road, Hounslow, Middx. (Bot., Orn.)
 H 1952 Dobson, Mrs. B. O., 11 Widmer Court, Vicarage Farm Road, Hounslow, Middx. (Bot., Orn.)
 H 1950 Dobson, Miss V., at 6 Wellesley Crescent, Strawberry Hill, Twickenham, Middx. (Orn.)
 1952 Dolman, Miss J. M., The Nurses' Home, Guy's Hospital, S.E.1. (Bot., Pl. G.)
 1952 Donovan, J. W., 21 Woodville Gardens, Ruislip, Middx. (Orn.)
 1928 Douglas-Smith, Miss K., 19 Thurlow Road, N.W.3. (Arch., Bot., Ecol., Orn.)
 H 1952 Dowling, Miss M. L., 31 Windsor Drive, Ashford, Middx. (Bot.)
 1946 Down, E. H., 28 Lynton Mead, Totteridge, N.20. (Orn.)
 1946 Downe, Mrs J. H., Dormers, Challock, near Ashford, Kent.
 1949 Drew, G. A., Carpoles, Stane Street, Ockley, Surrey. (Bot., Mam., Orn., Rep.)
 1950 Drummond, Mrs. A., 11 Westbourne Park Road, W.2. (Bot., Orn.)
 1950 Dubery, Miss J. A., 53 Leghorn Road, Harlesden, N.W.10. (Orn., R.)
 * 1942 Duffin, C. J., M.B.O.U., The Cottage, Lyncroft Gardens, Ewell, Surrey. (Bot., Ecol., Ent., Orn.)
 1949 Dundas, Miss J., 105 Makepeace Mansions, N.6. (Geol., R.)
 1953 Dyce, J. W., Hilltop, 46 Sedley Rise, Loughton, Essex. (Bot., Ent.)
 1946 Eades, T. L., 8 Rossdale Road, Putney, S.W.15. (Arch., Bot., Ent., Geol., Orn., R.)
 1944 Easton, A. M., M.B., B.S., M.R.C.S., L.R.C.P., F.R.E.S., Roadside Cottage, Lower Road, Great Bookham, Surrey. (Col.)
 1950 Eckenstein, Miss H., 14 Grove Gardens, Park Road, N.W.8. (Arch.)
 1950 Edwards, Mrs. L. B., 4 Bandon Rise, Wallington, Surrey. (Orn.)
 1948 Elborn, Mrs. E., 87 Brudenell Road, S.W.17. (Orn.)
 H 1936 Elcome, G. D., 303 Jersey Road, Isleworth, Middx. (Orn.)
 1946 Ellis, A. E., M.A., F.L.S., Epsom College, Surrey. (Bot., Chelifera, Isopoda, Mollusca, Odonata, Opiliones, Orth.)
 1950 Ellis, F. W., 38 Coniston Gardens, South Kenton, Wembley, Middx. (Orn.)
 1948 Ellis, S. E., B.Sc., British Museum (Natural History), Cromwell Road, S.W.7. (Geol.)
 1936 Ellis, W. G., "Carisbrooke", 3 St. Philips Road, Surbiton, Surrey. (Geol., Orn.)
 1939 Elphinstone, K. V., Artillery Mansions, S.W.1. (Orn.)
 1953 Ellwood, E. C., Ph.D., 47a Green Lane, Northwood, Middx. (Metallurgy)
 1946 Elworthy, Miss J. M., address not known. (Bot., Orn.)
 1947 England, M. D., Aros, Limpsfield, Surrey. (Orn.)
 1947 English, A. E., 21 Aultone Way, Sutton, Surrey. (Bot., Orn.)
 1927 English, Miss F., 8 Dorville Crescent, Ravenscourt Park, W.6. (Arch., Bot., Orn., R.)

- 1945 Entrican, Miss M. C., 12 Southwood Lane, Highgate, N.6. (Orn.)
- 1937 Evans, H. J., B.Sc., Kenora, Loudham Road, Little Chalfont, Bucks. (Arch., Ecol., Geol., Orn.)
- 1942 Evans, L. R., Grome Cottage, Highcombe Bottom, Thursley, Godalming, Surrey. (Ecol., Orn.)
- 1946 Evans, Percy, M.A., F.G.S., 21 Grimsdyke Road, Hatch End, Middx. (Geol.)
- H 1952 Everitt, E., Hampton Road, Twickenham, Middx.
- 1949 Faraday, Miss A., 3 Ashdown Road, Epsom, Surrey. (R.)
- 1946 Farmer, S., 80 Ferrymead Avenue, Greenford, Middx. (Orn.)
- 1951 Farr, Miss M. R., 1 Belsize Grove, Hampstead, N.W.3.
- 1949 Farrand, J., 58 Westbere Road, N.W.2. (Orn.)
- 1949 Farrand, Master R. J., 58 Westbere Road, N.W.2. (Orn.)
- 1949 Faulkner, Miss M. C. M., 127 Lower Richmond Road, Mortlake, S.W.14. (Arch.)
- 1952 Fawkes, F. S. E., Haresfield, Bessels Green, Sevenoaks, Kent. (Bot.)
- 1951 Fells, W. A., 101 Sunnyfield, Mill Hill, N.W.7. (Orn.)
- 1953 Fêlstead, D., 34 Gündulph Road, Bromley, Kent. (Orn.)
- 1951 Feltham, C. B. J., 5 Boscastle Road, N.W.5. (Orn.)
- 1950 Fenner, M. L., 54 Heybridge Avenue, Streatham, S.W.16. (Ent.)
- 1948 Filshie, K., address not known. (Orn.)
- 1950 Firth, Mrs. M., 32 De Vere Gardens, W.8. (Bot., Orn.)
- 1937 Fisher, J. M. McC., M.A., F.L.S., M.B.O.U., Old Rectory, Ashton, Northampton. (Ecol., Orn.)
- 1951 Fisher, P. B., White Gates, Croxley Green, Herts. (Geol.)
- 1950 Fishlock, A., 86 Hartley Down, Purley, Surrey. (Orn.)
- 1934 Fitter, R. S. R., B.Sc. (Econ.), F.Z.S., M.B.O.U., Greyhounds, Burford, Oxford. (Bot., Ecol., Ent., Orn.)
- 1949 Flaxman, E. W., "Kingswood", Derby Road, East Sheen, S.W.14. (Orn.)
- 1949 Fleming, Miss D. M., 16 Harley Street, W.1. (Orn.)
- 1953 Fletcher, W. J., 18 Burns Road, Alperton, Wembley, Middx. (Aquatic life)
- 1952 Flowers, Miss M. J., 95 Gower Street, W.C.1. (Orn.)
- 1947 Fookes, Miss U., 72 St. Mary's Mansions, Paddington, W.2. (Orn.)
- 1951 Forbes-Watson, Miss A., 2 Salisbury Road, Banstead, Surrey. (Orn.)
- 1936 Forrester, Mrs. C. E., Sesame Imperial and Pioneer Club, 49 Grosvenor Street, W.1. (Arch., Orn.)
- 1949 Forrester, J., 2 Albemarle, Parkside, Wimbledon Common, S.W.19. (Arch.)
- 1946 Forster, Miss E., 608 Grenville House, Dolphin Square, S.W.1. (Bot., Orn.)
- 1924 Foster, J. B., B.A., 12 Conway Road, S.W.20. (Orn.)
- 1945 Foster, Miss K. E., c/o Westminster Bank Ltd., West Worthing, Sussex. (Bot., Ecol.)
- 1950 Foster, K. J., The Avenue House, The Green, Richmond, Surrey.
- 1944 Fox, Prof. H. Munro, F.R.S., 27 Sussex Place, N.W.1. (Bot., Fr. water Ecol., Geol., Orn.)
- 1948 Foxley, R. H., B.A., F.R.G.S., 13 Albemarle Avenue, Twickenham, Middx. (Geol.)
- 1938 Franks, Miss H., 262 South Norwood Hill, S.E.25. (Arch., Bot., Ecol., Orn., R.)
- 1950 Fraser, Professor Sir Francis R., M.D., F.R.C.P., 2 Gordon Square, W.C.1.
- 1953 Fraser, Miss A., Central Enteric Reference Laboratory, Central Public Health Laboratories, Colindale Avenue, N.W.9. (Bot., Orn.)
- 1931 Frederick, Miss L. M., M.Sc., F.Z.S., Whitelands College, West Hill, Putney, S.W.15. (Ecol., Orn., P.L., R.)
- 1950 Freeman, G. D., 188 Domonic Drive, New Eltham, S.E.9. (Arch., Palaeontology)
- 1949 Freeman, Mrs. V. A. L., 30 Devonshire Place, W.1. (Orn.)
- 1951 Freeman, W., A.M.I.Struct.E., M.Inst.W., 21 Pemberton Avenue, Gidea Park, Essex. (Geol.)
- 1947 Freshwater, D. V., 25 Princes Court, Shoot-up-Hill, N.W.2. (Orn.)

- 1951 Friese-Greene, A. W., 11 Oakwood Court, Bromley Road, Beckenham, Kent. (Orn.)
- 1951 Friese-Green, Mrs. J., 11 Oakwood Court, Bromley Road, Beckenham, Kent. (Orn.)
- 1946 Frost, L. B., 55 St. Albans Road, Woodford Green, Essex. (Ent.)
- H 1952 Frostick, H. R., 92 Greencroft Road, Heston, Middx. (Bot.)
- 1951 Furse, E. J., "Devonia", Durham Road, Bromley, Kent. (Araneae, Hym.)
- 1950 Furze, Brigadier E. K. B., D.S.O., O.B.E., M.C., 55 Stanhope Gardens, South Kensington, S.W.7. (Orn.)
- 1952 Gale, J. A. B., 43 Mimms Hall Road, Potters Bar, Middx. (Orn.)
- 1953 Gardner, Miss J. B., 26 Belmont Close, Cockfosters, Barnet, Herts. (Orn.)
- 1949 Garrett, E. W. A., 84 Langdale Road, Thornton Heath, Surrey. (Orn.)
- 1947 Garrett-Jones, C., Iken Hall, Woodbridge, Suffolk. (Ecol., Ent.)
- 1952 Garstang, J., 73 The Avenue, Pinner, Middx. (Orn.)
- 1949 Gascoigne, T., 14 York Grove, Peckham, S.E.15. (Biol., Orn.)
- 1910 Gaze, W. E., The Cedars, Castle Hedingham, Halstead, Essex. (Bot., Lep., Orn.)
- H 1952 Germany, R. J., 49 Elmer Gardens, Isleworth, Middx. (Orn.)
- 1949 Gibbs, A., 271 Great North Way, Hendon, N.W.4. (Orn.)
- 1950 Gibbs, A. A., 11 Sinclair Road, West Kensington, W.14. (Orn.)
- 1939 Gibson, Mrs. G. M. (address not known). (Bot., Orn.)
- 1951 Giffard, Miss N. D., Flat 5, 16 Emperor's Gate, S.W.7. (Orn.)
- 1953 Gilby, M. A., 95 Longdown Lane South, Epsom, Surrey. (Orn.)
- 1948 Gill, Col. C. A., Wendover, Underhill Park Road, Reigate, Surrey. (Ent., Orn.)
- 1953 Gill, Miss V. C., 25 West Hatch Manor, Ruislip, Middx. (Orn.)
- 1931 Gillett, J. D., F.R.E.S., c/o The Medical Department, Entebbe, Uganda, British East Africa. (Ent., Rep.)
- 1933 Gillham, E. H., 15a Cargreen Road, South Norwood, S.E.25. (Orn.)
- 1946 Gollop, Charles, 40 Sandlands Road, Walton-on-the-Hill, Tadworth, Surrey. (Ent., Orn.)
- 1950 Goode, F. C., 19 Maythorne Close, Watford, Herts. (Orn.)
- 1929 Goodfellow, Miss L., Flat 3, 7 Lyndhurst Gardens, N.W.3. (Orn.)
- 1951 Goodfellow, R. F., A.M.I.Struct.E., 93 Chippenham Road, W.9. (Ecol., Geol.)
- 1947 Goodwin, D., "Toft", Monks Road, Virginia Water, Surrey. (Ecol., Orn.)
- H 1939 Goom, Miss E. M., 78 Elmfield Avenue, Teddington, Middx. (Orn.)
- H 1946 Goom, Miss N., 78 Elmfield Avenue, Teddington, Middx. (Orn.)
- 1948 Gore, G. C., 49 Eton Avenue, N.W.3. (Orn.)
- 1940 Gore-Browne, Miss E., 10a High Street, Winslow, Bletchley, Bucks. (Orn.)
- 1942 Gould, H. G., 35 Bergholt Avenue, Ilford, Essex. (Orn.)
- 1951 Gould, K. J., 9 Amyand Park Road, Twickenham, Middx. (Orn.)
- 1946 Graham, Miss E. D., 1 Beaumanor Mansions, 115 Queensway, W.2. (Bot., Orn.)
- 1952 Gray, Miss A. E., "Ingham", 164 Dorset Road, Merton Park, S.W.19. (Bot., Orn.)
- 1947 Gray, C. A. M., 41 Clare Court, Judd Street, W.C.1. (Geol.)
- 1934 Gray, Miss J. W., 10 Canford Road, S.W.11. (Arch., Bot., R.)
- 1952 Gray, Miss V., 14 Westmorland Road, Barnes, S.W.13. (Orn.)
- 1952 Greaves, B. J., 642a Finchley Road, Golders Green, N.W.11. (Orn.)
- 1951 Green, Miss E. B., 28 Lyndhurst Road, N.W.3. (Ecol., Orn.)
- 1927 Green, R., F.Z.S., The Studio, Hickling, Norwich, Norfolk. (Orn.)
- 1948 Green, R. S. M., Wey Lodge, Portmore Park Road, Weybridge, Surrey. (Geol., Orn.)
- 1939 Greenfield, H. F., B.A., 41 Britains Lane, Sevenoaks, Kent. (Orn.)
- 1948 Greenfield, P., 18 Stuart Road, Warlingham, Surrey. (Bot., Orn.)
- 1952 Grieve, Miss F., Hospital for Tropical Diseases, 4 St. Pancras Way, N.W.1. (Orn.)
- 1947 Griffiths, Miss R. H., 19b Medway Street, S.W.1. (Arch., Bot., Orn.)
- 1950 Groves, E. W., 143 Carshalton Park Road, Carshalton, Surrey. (Bot., Ecol.)

- 1945 Guildhall Library, E.C.2.
 1950 Guthrie, D. M., 6 Mall Studios. Parkhill Road, Hampstead, N.W.3. (Entom.)
 1949 Hains, Miss G. A., 10 Clarence Road, Teddington, Middx. (Ecol.)
 * 1927 Hale, R. W., 6 Grendon Gardens, Wembley Park, Middx. (Arch., Bot., Ecol., Orn.)
 1947 Hall, D. G., 34 Ellerton Road, Wandsworth Common, S.W.18. (Ent., Orn.)
 1953 Hall, Miss E. M., F.R.C.S., 16 Pilgrims Lane, Hampstead, N.W.3. (Arch.)
 1952 Hall, Mrs. J. F., 26 Luddesdon Road, Erith, Kent. (Bot.)
 1946 Hall, Dr. Marjorie K., 16 Pilgrims Lane, Hampstead, N.W.3. (Orn.)
 1952 Hall, P. C., 26 Luddesdon Road, Erith, Kent. (Bot.)
 1947 Hamilton, M. K., Anton House, Riching's Way, Iver, Bucks. (Orn.)
 1950 Hammond, A. E. F., 39 Gunterstone Road, W.14. (Bot., Ent., Freshwater life, Orn.)
 1948 Hammond, F. P., 34 Woodland Way, Mill Hill, N.W.7. (Geol., Orn.)
 1903 Hanbury, F. Capel, Westfield, Hoddesdon, Herts. (Lep.)
 1921 Hardiman, J. P., C.B.E., B.A., Hyron's Cottage, Woodside Road, Amersham, Bucks. (Orn.)
 1946 Hare, Miss P. E. F., B.Sc., 80 Coleman Court, S.W.18. (Bot., Geol., Orn.)
 1952 Harris, Mrs. D. M., 41 Woodside Road, Woodford Green, Essex. (Orn.)
 1949 Harris, K. G., 31 Broadfields Avenue, Winchmore Hill, N.21. (Orn.)
 1942 Harris, L. F., 30 Ellis Avenue, Rainham, Essex. (Orn.)
 1947 Harrison, C. J. O., 178 Mantilla Road, Tooting, S.W.17. (Orn.)
 1947 Harrison, R. J., Yarne, Oxshott Way, Cobham, Surrey. (Orn.)
 1945 Hartridge, Miss M. R., 94 Canberra Road, Charlton, S.E.7. (Bot., Orn.)
 1951 Harvey, D. W., 8 Highlands Gardens, Ilford, Essex. (Arch., Geol.)
 1952 Harvey, Miss E. N., 28 Hillmore Grove, Sydenham, S.E.26. (Bot., R.)
 1935 Hatch, R. S., 65 St. Mark's Road, Hanwell, W.7. (Orn.)
 1951 Hawkes, Miss J. M., 17 Bramley Road, Cheam, Surrey. (Orn.)
 1950 Hawkins, G. F., 34 Hollington Crescent, New Malden, Surrey. (Orn.)
 1947 Hayes, Miss D. L., 103 Knatchbull Road, S.E.5.
 1947 Hayman, P. J., 53 Eastmont Road, Esher, Surrey. (Orn.)
 1946 Hayman, R. W., 40 Pooley Green Road, Egham, Surrey. (Mam., Orn.)
 1937 Hayward, H. H. S., Jessamine House, King Street, Tring, Herts. (Orn.)
 1927 Hayward, John F., Ph.D., M.Sc., F.G.S., 29 Mount Echo Drive, Chingford, E.4. (Biol., Geol.)
 1952 Hazlewood, A. C., "The Two Steps", Lennard Close, West Wickham, Kent. (Ent., Orn.)
 1951 Head, Miss M. C., 110 Chestnut Rise, Plumstead, S.E.18. (Orn.)
 1951 Hemmings, L. G., L.D.S. (Eng.), Maybury Lodge, High Street, Thames Ditton, Surrey. (Orn.)
 1951 Hemsley-Hall, Squadron Leader H. S., Officers' Mess, R.A.F., Uxbridge, Middx. (Orn.)
 1952 Henderson, Mrs. F. T., 29 The Avenue, Bedford Park, W.4. (Orn.)
 1952 Henderson, L. B., 29 The Avenue, Bedford Park, W.4. (Orn.)
 1950 Henty, A. J., 427 Chipstead Valley Road, Coulsdon, Surrey. (Orn.)
 1946 Hepburn, Miss E. M., 6 Avenue Road, Teddington, Middx. (Orn.)
 1948 Herbert, E. H., 8 Meadow Close, Sutton, Surrey. (Orn.)
 1949 Herington, S. D., 8 Eton Villas, Hampstead, N.W.3. (Orn.)
 1953 Herring, Dr. M. K., 48 Middleway, N.W.11. (Orn.)
 1951 Herron, Mrs. M. A., 11 Queen's Gate Place, S.W.7. (Orn.)
 1947 Hick, A. E., Sherrards, Cricketfield Lane, Bishops Stortford, Herts. (Bot., Ent. (esp. Hym.), Photography, Pl. G.)
 1948 Hicks, Miss E. D., 3 Gilston Road, S.W.10. (Orn.)
 1946 Hicks, P. Yelverton, M.B., B.S., F.Z.S., Hayes Barton, Totteridge Lane, Totteridge, Herts. (Bot., Ent., Orn.)
 H 1953 Hickson, R., Madingley Hotel, Willoughby Road, Twickenham, Middx.
 1950 Higgins, J. F., St. Mary's Hospital Medical School, Paddington, W.2. (Orn.)
 1946 Hill, H. M., 71 Ellison Road, Streatham, S.W.16. (Arch., Ecol.)

- 1952 Hill, Miss J. E., 36 St. Martin's Drive, Eynsford, Kent.
 1948 Hillaby, J. D., F.Z.S., F.R.E.S., 85 Cholmley Gardens, N.W.6. (Ecol., Ent., Geol.)
 1946 Hillman, Miss E. M., 16 Exford Road, Grove Park, S.E.12. (Ecol., Orn., R.)
 H 1952 Hills, Miss P., 1 March, Twickenham, Middx. (Arch.)
 1938 Hindson, M. T., 11 Holland Park, W.11. (Ecol., R.)
 1951 Hobart, Miss M. H., 54 Birkhall Road, Catford, S.E.6. (Ecol., Orn.)
 1951 Hocken, A., 14 Manor Avenue, Northolt, Middx. (Bot., Orn.)
 1949 Hodgson, R. C., "Oakdene", Higher Brook Meadow, Sidford, Sidmouth, S. Devon. (Orn., R.)
 1950 Hollick, Miss V., 14 Randolph Crescent, Maida Vale, W.9. (Orn.)
 1946 Hollings, Miss M., 30 Selborne Road, Sidecup, Kent.
 1929 Hollom, P. A. D., Manor Cottage, Park Road, Woking, Surrey. (Orn.)
 1952 Holloway, J. F., Bettrington Cottage, Perry Street, Chislehurst, Kent. (Orn.)
 1949 Holme, H. C., 12 Upper Berkley Street, W.1. (Orn.)
 1947 Holmes, Miss A. M., Sunnyside, Shelley, Ongar, Essex.
 1948 Holroyd, R., 152 Grand Drive, Raynes Park, S.W.20. (Orn.)
 1944 Holroyde, F. J., 102/3 Fetter Lane, E.C.4. (Orn.)
 1932 Homes, R. C., 62d Albemarle Road, Beckenham, Kent. (Ecol., Orn.)
 1952 Hopwood, Brig. J. A., D.S.O., Flat 3, 30 The Little Boltons, S.W.10. (Orn.)
 1951 Hori, J. N., 66 Barriedale, New Cross, S.E.14. (Orn.)
 1905 Hornblower, A. B., 91 Queen's Road, Buckhurst Hill, Essex. (Api., Arch., Ecol., Orn., R.)
 1949 Horne, Miss H., 12 King's Crescent, N.4. (Geol., Orn.)
 1953 Horton, Dr. A. T., 92 Felhampton Road, New Eltham, S.E.9. (Bot., Orn.)
 1950 Hosking, E., F.R.P.S., M.B.O.U., 20 Crouch Hall Road, N.8. (Orn.)
 1950 Howard, Miss M., 50 Greencroft Gardens, N.W.6. (Orn.)
 1948 Howe, G. A., "Denewood", Chestnut Close, Kingswood, Surrey.
 1949 Howieson, Miss A. R., address not known. (Geol.)
 1945 Howlett, V. G. A., Elm Cottage, Grove Road, Richmond, Surrey. (Arch., Geol., R.)
 1941 Hoy, K. E., 23 Wilderton Road, Stamford Hill, N.16. (Ent., Orn.)
 H 1952 Hubbard, Miss P., 15 Cadbury Road, Sunbury-on-Thames, Middx.
 1947 Hughes, C., 6 St. Hilda's Avenue, Ashford, Middx. (Orn.)
 1951 Hughes, Mrs. J., Nara, 7 Nascot Wood Road, Watford, Herts. (Orn.)
 H 1952 Hunt, P. A., 63 St. Jude's Road, Englefield Green, Surrey. (Orn.)
 1948 Hunter, E. N., 33 Willow Road, N.W.3. (Orn.)
 1938 Hurcomb, Rt. Hon. Lord, G.C.B., K.B.E., 47 Campden Hill Court, W.8. (Orn.)
 1949 Hurst, J., Emmanuel Vicarage, Hitcham Road, Leyton, E.17. (Orn.)
 1952 Hurtle, Miss E. E. M., 15 Luxemburg Road, Hammersmith, W.6. (Bot., Orn.)
 1945 Hutchings, C. E., 24 Westbourne Gardens, W.2. (Orn.)
 1948 Hutchings, G. E., Juniper Hall Field Centre, Mickleham, Dorking, Surrey. (Ecol.)
 1950 Hutchinson, C. C., 2 Park Drive, Littleover, Derby. (Orn.)
 1950 Hyam, Miss H. M., 65 Hillfield Road, Hampstead, N.W.6. (Orn.)
 1947 Hyatt, K. H., 3 Kidbrooke Gardens, Blackheath, S.E.3. (Lep., Orn.)
 1952 Idle, A. A., 41 Skeena Hill, Southfields, S.W.18. (Bot.)
 1946 Inglis, Mrs. G. I., 34 West Hill Court, Millfield Lane, N.6. (Orn.)
 1952 Isherwood, Miss E. M. C., 26 White Post Hill, Redhill, Surrey. (Bot.)
 1945 Izzard, W. P., 180 Woodhouse Road, North Finchley, N.12. (Orn.)
 1948 Jackson, Miss B. P., Pharmacy Department, The Technical College, Sunderland, Co. Durham. (Bot.)
 1948 James, L., 19 Bushey Road, Ickenham, Uxbridge, Middx. (Orn.)
 1948 Jaques, Miss G. E., 58 Kenveachy Gardens, Charlton, S.E.7. (Bot., Ecol.)
 1951 Jeffreys, A. H., 13 Cheyne Gardens, S.W.3. (Orn.)
 1950 Jeneid, M., 10 Lowndes Street, S.W.1. (Orn.)
 1948 Jephson, Mrs. P., 32 Queensberry Mews East, South Kensington, S.W.7. (Orn.)

- 1933 Johns, Miss L. J., 87 Morley Hill, Enfield, Middx. (Arch., Bot., Ecol., Orn., R.)
- 1950 Johnson, Miss M., 368 Whitefoot Lane, Bromley, Kent. (Geol.)
Zoo.)
- 1944 Johnson, P., F.Z.S., 53 Ennerdale Road, Richmond, Surrey. (Orn.)
- 1951 Johnston, Miss J., 99 South Norwood Hill, S.E.25., and at 1 Clarence House, Marina, Bexhill, Sussex. (Orn.)
- 1948 Jolley, A. E., Olivers, Sewardstonebury, Chingford, Essex. (Orn.)
- 1951 Jones, Miss A. H., 47 Ladysmith Road, Enfield, Middx. (Arch., Bot., Orn., R.)
- 1951 Jones, A. W., 99 Ashmore Road, Paddington, W.9. (Bot., Ecol., Ent.)
- 1952 Jones, C. F., 136 Portway, Stratford, E.15. (Bot., Orn.)
- 1950 Jones, Miss D. Picton, B.A., Portsmouth Club, 12 Grosvenor Place, S.W.1. (Arch., Bot., Ecol., Orn.)
- 1949 Jones, Lady Enid S., 415 Rodney House, Dolphin Square, S.W.1. (Arch., Orn.)
- 1950 Jones, F. H., 28 Jordan Road, Greenford, Middx. (Orn.)
- 1939 Jones, H. O., 110 Fitzjohns Avenue, Hampstead, N.W.3. (Ecol., Orn.)
- 1948 Jones, Miss J., 28 Elm Park Avenue, N.15. (Bot., Orn.)
- 1950 Jones, Miss P. M. S., 101 Talcarne Drive, Pinner, Middx. (Arch., Orn.)
- 1952 Jones, Miss P. R., 2 Birchwood Mansions, Muswell Hill, N.10. (Bot., Ecol., Orn.)
- 1949 Jones, R. E., 68 Coleman Street, E.C.2. (Orn.)
- * 1899 Kaye, W. J., F.R.E.S., Chantrey Lodge, Longdown, Guildford, Surrey. (Lep.)
- 1949 Kellett, Mrs. F. G., 613 Royal Palace Hotel, W.8. (Bot., Conch., Geol.)
- 1949 Kellett, Miss S., 613 Royal Palace Hotel, W.8.
- 1945 Kelleway, Mrs. D. M., 20 The Pryors, Hampstead, N.W.3. (Orn.)
- 1949 Kelsey, T. L., address not known. (Orn.)
- 1945 Kennedy, Miss M. E., 62 Lordship Road, Stoke Newington, N.16. (Arch., Bot., Ecol., Ent., Geol., Orn., R.)
- 1946 Kenrick, Miss Alison, 11 Pembridge Villas, W.11. (Orn.)
- 1944 Kent, D. H., 75 Adelaide Road, W. Ealing, W.13. (Bot., Chem., Ecol.)
- 1951 Keon, S., 106 Kenilworth Avenue, Winbledon Park, S.W.19. (Orn.)
- 1947 Kerney, M., "Vasconia", Crown Dale. Upper Norwood, S.E.19. (Geol., Palaeontology)
- 1934 Kerr, Mrs. H. M. Rait, Paddocks, Copperkins Lane, Amersham, Bucks. (Arch., Ecol., Orn.)
- 1936 Keywood, K. P., Croft Cottage, 85 Hare Lane, Claygate, Surrey. (Ecol., Ent., Orn.)
- 1953 Kiley, A. V., 87 Manton Road, Abbey Wood, S.E.2.
- 1929 King, E. L., The Cottage, Town Corner, Earl Soham, Woodbridge, Suffolk. (Arch., Bot., Geol., Orn.)
- 1950 King, J., 78 Oakhill Crescent, Woodford Green, Essex. (Ent.)
- 1932 King, Mrs. O. T. G., The Cottage. Town Corner, Earl Soham, Woodbridge, Suffolk. (Arch., Bot., Geol., Orn., R.)
- 1953 King-Farlow, Mrs. V., 91 Hillway, Highgate, N.6. (Orn.)
- 1949 Kirkby-Johnson, Miss E. L., 46 Seymour Court, Muswell Hill, N.10. (Bot., Orn.)
- 1952 Kirkpatrick, Miss P., 153 Gordon Court, Ducane Road, W.12. (Arch., Geol.)
- 1946 Knipe, P. R., 24 Capthorne Avenue, Harrow, Middx. (Orn.)
- 1950 Knock, R. H., Thimble Hall Cottage, Penshurst, near Tonbridge, Kent. (Orn.)
- 1951 Lacklison, J. D., Melvin Hall, Golders Green Road, N.W.11. (Orn.)
- 1952 Lacklison, Miss M., Clarence Lodge, Hampton Court, E. Molesey, Surrey. (Orn.)
- 1947 Lamb, Mrs. M. E., 27 Barton Road, W.14.
- 1948 Lambert, Lt.-Col. H. M., O.B.E., Manor Cottage, Wimbledon Common, S.W.19.
- 1946 Landells, Dr. J. W., 18 Bahmoral Road, Worcester Park, Surrey. (Orn.)

- 1946 Landells, Mrs. N., 18 Balmoral Road, Worcester Park, Surrey. (Orn.)
- 1948 Langham, Miss L. B., 164 St. Anne's Hill, S.W.18. (Orn.)
- 1949 Langston, H., 41 Oakdene Road, Sevenoaks, Kent. (Orn.)
- 1947 Lansbury, I., 50a Alston Road, Barnet, Herts. (Ent., Orn.)
- 1951 Larwood, G. P., F.G.S., 376 Bowthorpe Road, Norwich, Norfolk, and at Men's Hall of Residence, Queen Mary College, Elmhurst High Road, E.18. (Ecol., Geol., Prehistory)
- 1953 Laundon, J. R., 102 Downton Avenue, Streatham Hill, S.W.2. (Bot., Ecol., Orn.)
- 1951 Lawfield, W. N., 345 South Lane, New Malden, Surrey. (Bot.)
- 1953 Lawford, Miss P. A., "Fleet", 9 Fordbridge Road, Sunbury-on-Thames. (Arch., Ecol., Geol., Orn.)
- 1952 Lawrence, G. F., 27 Old Devonshire Road, Balham, S.W.12. (Bot.)
- 1953 Lawson, T. R., 50 Friars Walk, Southgate, N.14. (Orn.)
- 1946 Le Gros, A. E., 155 Glenfarg Road, Catford, S.E.6. (Arachnida, Ecol., Geol.)
- 1948 Leiper, Miss H. G., 31 Chivalry Road, S.W.11. (Bot., Orn., R.)
- 1952 Lemon, Miss I., 66 Kewferry Road, Northwood, Middx. (Bot., Orn.)
- 1950 Leston, D., F.R.E.S., F.Z.S., 44 Abbey Road, N.W.8. (Ecol., Ent., esp. Heteroptera)
- 1950 LeSueur, Mrs. K., British Embassy, Calle del Lerma 71, Mexico, D.F. (Bot.)
- 1950 LeSueur, K. H., British Embassy, Calle del Lerma 71, Mexico, D.F.
- 1951 Letts, B., 183 Windmill Lane, Greenford, Middx. (Orn.)
- 1947 Letts, J. K., 183 Windmill Lane, Greenford, Middx. (Bot., Fr. Water Biol.)
- 1950 Leutscher, A. G., 7 St. Margaret's Court, E.12. (Herpetology)
- 1951 Levy, Miss R. E., 28 Heath Drive, Raynes Park, S.W.20. (Bot., Geol.)
- 1948 Lewis, M., 13 Victoria Grove, W.8. (Orn.)
- 1919 Leyton Public Libraries (E. Sydney, F.L.A.), Central Library, E.10.
- 1953 Lightfoot, Miss A., 11 Fairacres, Roehampton Lane, S.W.15. (Bot., Orn.)
- 1946 Lightly, J. M. F., 168 Manor Green Road, Epsom, Surrey.
- 1949 Limmer, Miss A., 21 Alwyn Avenue, Chiswick, W.4. (Orn.)
- 1950 Lindsey, D. B., 37 Warren Road, Leyton, E.10. (Bot., Ent., Zoo.)
- 1948 Lister, B., 42 Springswood Avenue, Shipley, Yorks. (Geol.)
- * 1926 Littlejohn, H. A., F.Z.S., c/o A. Stent & Sons, Brockhampton Lane, Havant, Hants. (Bot., Ent., Orn., R.)
- 1947 Lloyd, G. W., 151 Junction Road, N.19. (Orn.)
- 1934 Locket, G. H., M.A., M.Sc., "The Copse", Grove Hill, Harrow-on-the-Hill, Middx. (Ecol., Ent.)
- 1944 Lockett, J. H., The Pines, Sheath Lane, Oxshott, Surrey. (Orn.)
- 1948 Lockett, T. H., 69 Norfolk Avenue, Sanderstead, Surrey. (Orn.)
- * 1926 Longfield, Miss C. E., F.R.G.S., F.Z.S., F.R.E.S., M.B.O.U., 11 Iverna Gardens, Kensington, W.8. (Bot., Ecol., Ent., Orn., R.)
- 1936 Lousley, J. E., 7 Penistone Road, S.W.16. (Bot., Ecol., Orn.)
- 1952 Lovell, R. J., 73 Beech Hall Road, Highams Park, E.4. (Orn.)
- 1946 Lutwyche, Miss V. U., 24 Well Walk, Hampstead, N.W.3. (Orn.)
- 1928 MacAlister, Mrs. E., 10 St. Albans Grove, Kensington, W.8. (Bot., Orn.)
- 1952 McArthur, Miss B., c/o Mrs. R. P. Lister, 36f Trebovis Road, Earls Court, S.W.5. (Orn.)
- 1950 McCall, J. H., Stone House, Stone, near Dartford, Kent. (Orn.)
- * 1937 McClintock, Major D., M.A., A.C.A., Bracken Hill, Platt, near Sevenoaks, Kent. (Bot., Orn.)
- 1935 McCulloch, Lt.-Col. G. K., F.Z.S., M.B.O.U., "Tringa", 5 Roy Road, Northwood, Middx. (Orn.)
- 1951 McDowall, R. S., Royal School of Church Music, Roper House, St. Dunstan's Street, Canterbury, Kent. (Orn.)
- 1935 McDowell, Miss C. M., 19 Cambridge Park Court, E. Twickenham, Middx. (Bot., Orn., R.)
- 1939 McEwen, Miss E., c/o Westminster Bank Ltd., 74 Westbourne Grove, W.2. (Orn.)

- 1953 McGinnis, E. B., Randak House, Croydon Road, Beckenham, Kent. (Orn.)
- 1952 McGregor, K., 51 Greyhound Mansions, Greyhound Road, W.6. (Geol.)
- H 1950 Macgregor, Miss M. C., 11 St. George's Road, St. Margaret's, Middx. (Orn.)
- 1952 McGuire, Miss J., 10 Queensberry Place, S.W.7. (Orn., R.)
- 1945 McHoul, J., 76 Princes Court, Brompton Road, S.W.3. (Orn.)
- 1953 Macadam, P./O. G., Officers' Mess, H.Q. No. 11 Group, R.A.F., Hillingdon, Middx. (Orn.)
- 1929 Mackay, Dr. Helen M. M., M.D., F.R.C.P., 7 Lyndhurst Gardens, N.W.3. (Orn.)
- 1952 Mackenzie, R. S., 32 Silverdale, Sydenham, S.E.26. (Orn.)
- 1948 Mackintosh, D. R., Oakwood, Bayley's Hill, Sevenoaks, Kent. (Orn.)
- 1946 Mackintosh, W., 6 Enmore Road, S.W.15. (Arch., Biol., Bot., Ecol., P.L.)
- 1932 Mackworth-Praed, C. W., F.R.G.S., F.Z.S., F.R.E.S., M.B.O.U., Castletop, Burley, near Ringwood, Hants. (Ent., Orn.)
- 1952 Maclaren, R. G. C., Flat 70, 6 Hall Road, N.W.8. (Orn.)
- 1951 McLay, J., 33 Village Way, Pinner, Middx.
- 1948 McLeish, Miss G., M.Sc., 19 Gunnersbury Court, Bollo Lane, W.3. (Ecol., Ent., Orn.)
- H 1952 McMullen, Mrs. W. M., 2 Rosary Gardens, Ashford, Middx. (Orn.)
- 1943 McNicol, G. F., 38 Kings Road, Edmonton, N.18. (Bot., Orn.)
- 1948 MacPherson, A. H., "Robsacks", Eynsford, Kent. (Orn.)
- 1946 Macpherson, Miss A. Margaret C., M.D., F.R.C.P., 22 Well Walk, Hampstead, N.W.3. (Orn.)
- 1934 Mann, F. R., M.C., Noreena, Ham Common, Surrey. (Orn.)
- 1934 Manser, G. E., 279 Clockhouse Road, Beckenham, Kent. (Bot., Ecol., Orn.)
- 1951 Mansfield, H. W., F.Z.S., Friars' Crag, King's Road, Orpington, Kent. (Orn.)
- 1952 Mansfield, Miss S. J., Friars' Crag, King's Road, Orpington, Kent. (Bot., Orn.)
- * 1934 Marchant, Miss R., 2 Ashley Park, Rusthall, Tunbridge Wells, Kent. (Arch., Bot.)
- 1950 Marsh, B. A., 19 Grasmere Avenue, Kingston Vale, S.W.15. (Orn.)
- 1953 Marsh, Miss W., Flat 3, 4 Acol Road, N.W.6. (Arch., Biol., Geol.)
- 1950 Martin, A. E., M.D., Baynards, Bourne End, Bucks. (Arch., Bot.)
- 1951 Martin-Clarke, Mrs. D. E., The Penn Club, 22 Bedford Place, W.C.1. (Orn.)
- 1950 Maskell, Miss E., c/o Maria Grey College, 300 St. Margaret's Road, Twickenham, Middx. (Bot., Ent., Orn.)
- H 1952 Mason, M. A., The Bungalow, Osterley Park, Isleworth, Middx. (Ent., Orn.)
- 1948 Mather, D. H., 45 Hawke Road, S.E.19. (Orn.)
- 1950 Mathews, Miss M. L., 73 Elm Grove Road, Barnes, S.W.13. (Orn.)
- 1952 Maunder, Miss O., 30 Victoria House, South Lambeth Road, S.W.8. (Orn.)
- 1952 May, R. H., 8 Silvertown Road, Hammersmith, W.6. (Orn.)
- 1950 Mayall, R. G., M.B., M.R.C.S., L.R.C.P., 70 Cleveland Road, Ealing, W.13. (Orn.)
- 1947 Maynard, T. R., 26 Kenton Park Crescent, Kenton, Harrow, Middx. (Orn.)
- 1952 Meade, M. J., British Museum (Nat. Hist.), Cromwell Road, S.W.7. (Geol.)
- 1943 Mears, R. G., 14 Hampton Road, E.4. (Ent.)
- 1949 Medhurst, H. P., 43 Gowrie Road, Lavender Hill, S.W.11. (Orn.)
- 1951 Meerendonk, Mrs. M. L., "Senga", 66c Norbiton Avenue, Kingston, Surrey. (Orn.)
- 1951 Melderis, Dr. A., 12 Bankhurst Road, Catford, S.E.6. (Bot.)
- 1935 Melluish, W. D., 56 Sunnyfield, N.W.7. (Arch., Ecol., Orn.)
- 1946 Mercer, G. I., Flat 7, 24 Powis Square, Kensington, W.11. (Orn.)
- 1952 Meynell, Miss D. E., 1 Maids of Honour Row, Richmond Green, Surrey. (Bot.)
- 1950 Miles, W. J., 5 Sylvan Way, West Wickham, Kent. (Bot., Ecol., Geol., Pre-history, Zoo.)
- H 1952 Miller, C. R., Dreemskerry, North Common Road, Uxbridge, Middx. (Agric., Bot., Orn.)

- 1948 Miller, Miss J., Dispensary, Westminster Hospital, St. John's Gardens, S.W.1. (Orn.)
- 1948 Miller, O. L., 52a Princes Square, W.2. (Orn.)
- 1944 Mills, T. H. L., A.I.E.E., 82 Madrid Road, S.W.13. (Orn.)
- 1949 Milne, Miss A. M., 51 Lansdowne Road, W.11. (Arch., R.)
- 1949 Milne, B. S., 6 Raleigh Avenue, Wallington, Surrey. (Orn.)
- 1947 Milne-Redhead, E., F.L.S., 7 Ashley Gardens, Petersham, Richmond, Surrey. (Bot., Ent., Orn.)
- H 1952 Minihane, M. J., 75 Wood Lane, Isleworth, Middx.
- 1946 Mitchell, F. J. L., 298 Latymer Court, W.6. (Orn.)
- H 1949 Mitchell, W. N., 24 Townsend Road, Southall, Middx. (Orn.)
- 1950 Moffat, Miss J. M., 23 Blackheath Park, Blackheath, S.E.3. (Biol., Orn.)
- 1949 Monk-Jones, A., 44 Gerard Road, Barnes, S.W.13. (Orn.)
- 1953 Moody, Miss N. H., 117 Connaught Gardens, Palmers Green, N.13. (Orn.)
- 1948 Moore, F. Littlewood, The Studio, 3 Woodfield Way, Bounds Green Road, N.11. (Orn.)
- 1948 Moore, G. W., "Manor Wood", 3 Broad Lane, Hampton, Middx.
- 1947 Moore, G. W. L., Sunnyside Cottage, Westcar Lane, Hersham, Surrey. (Orn.)
- 1948 Moore, Commander H. H. R., R.N., United Service Club, Pall Mall, S.W.1. (Orn.)
- 1948 Moore, Mrs. M. M., The Studio, 3 Woodfield Way, Bounds Green Road, N.11. (Orn.)
- 1947 Moorman, R. F., 294 Queensbridge Road, Dalston, E.8. (Geol.)
- 1947 Morgan, Miss B. M. C., B.A., Braeside, Horley, Surrey. (Bot.)
- 1934 Morgan, D. A. T., Hunt's Barn, Knodishall, Saxmundham, Suffolk. (Ecol., Orn., R.)
- 1946 Morgan, E. W. A., 8 St. Paul's Wood Hill, Orpington, Kent. (Bot., Orn.)
- 1948 Morgan, Dr. H. V., The Dunn Laboratory, St. Bartholomew's Hospital, E.C.1. (Orn.)
- 1949 Morison, Dr. G. D., 4 Granville Place, Aberdeen, or Entomological Department, North of Scotland College of Agriculture, Marischal College, Aberdeen. (Econ. Ent., Thysanoptera)
- 1952 Morris, P., 68 Westminster Gardens, Barking, Essex. (Orn.)
- 1951 Moyle, B. V., 22 Embercourt Road, Thames Ditton, Surrey. (Orn.)
- 1950 Moynihan, M., 175 Sussex Gardens, W.2.
- 1942 Mugele, G. F., 6 Mansfield Hill, Chingford, E.4.
- 1945 Muir-Wood, Miss H. M., D.Sc., 4 Gliddon Road, Barons Court, W.14. (Bot., Orn.)
- 1950 Mulholland, Mrs. E., 11 Griffin Road, S.E.18. (Orn.)
- 1934 Munro, Miss M., 50a Hendham Road, Trinity Road, S.W.17. (Ecol., Orn.)
- 1949 Murray, H., "Bracken", Cornsland, Brentwood, Essex. (Orn.)
- * 1938 Myers, A. F., 17 Wychwood Avenue, Thornton Heath, Surrey. (Orn.)
- 1946 Nash, Mrs. B. M., 2 Hillcrest Road, Sydenham, S.E.26. (Orn.)
- 1949 Needham, Miss V. A., 112 Lonsdale Avenue, Wembley, Middx. (Bot., Geol., R.)
- 1947 Nelmes, Miss E. M., 27 Westbourne Avenue, Acton, W.3. (Ecol.)
- 1946 Newbery, D. A., 41 Courtfield Rise, West Wickham, Kent. (Bot., Ecol., Geol., Orn.)
- 1949 Newbury, R. D. A., 124 Bromley Road, Beckenham, Kent. (Orn.)
- 1950 Newman, B. H., 59 Davis Road, Acton, W.3. (Orn.)
- 1946 Newton, Dr. R. G., 4 Walden Road, Welwyn Garden City, Herts. (Ecol., Orn.)
- 1926 Niblett, M., F.R.E.S., 10 Greenway, Wallington, Surrey. (Ecol., Ent., Pl. G.)
- 1949 Nicholls, E. H., 27 St. George's Road, Forty Hill, Enfield, Middx. (Orn.)
- * 1893 Nicholson, Miss B., 49 Danecourt Road, Parkstone, Dorset. (Bot.)
- 1934 Nicholson, E. M., C.B., M.B.O.U., 13 Upper Cheyne Row, S.W.3. (Ecol., Orn.)
- 1949 Nicholson, Miss P. J., 38 Kidbrooke Park Road, Blackheath, S.E.3. (Orn., Water Biol.)

- 1951 Nisbet, I. C. T., 24 Penwerris Avenue, Osterley, Middx. (Orn.)
 1951 Noakes, Miss D. N., 4 Langland Gardens, Hampstead, N.W.3. (Ecol., Orn.)
 1946 Noel, A. S., 42 Redbridge Lane, Ilford, Essex. (Bot., Ent., Orn.)
 1946 Noel, Miss D., 32 Parkhill Road, N.W.3.
 1949 Nordal, T. G., 9 Twyford Avenue, Acton Hill, W.3. (Orn.)
 1946 Norkett, A. H., 96 The Street, Fetcham, Surrey. (Bot., Ecol.)
 1940 Norsworthy, H. H., 8 Balliol House, Manor Fields, S.W.15. (Orn.)
 1952 Nutting, Miss D. R., 27 Stanhope Gardens, S.W.7.
 1952 Nye, E. R., 20 Bramley Road, Southgate, N.14. (Ent.)
 1953 Oakley, H. A., 126 Harbord Street, Fulham, S.W.6. (Geol.)
 1945 O'Neil, Mrs. H. E., F.S.A., 32 Blomfield Road, W.9. (Arch., Orn.)
 1950 Ormerod, E. C., 4 Cairnfield Avenue, N.W.2. (Bot., Ent., Orn.)
 1952 Osborne, Miss Joan, 16 North Drive, Ruislip, Middx. (Orn.)
 1947 Owen, D. F., The White House, Yarnells Hill, Botley, Oxford. (Lep., Orn.)
 1946 Owen, Mrs. E. K., 21 Jessel House, Judd Street, W.C.1.
 1949 Owen, Sgt. J. E., Education Office, Beachley Camp., Chepstow, Mon.
 (Bot., Ecol., Ent., Palaeontology)
 1950 Owens, O. F., 12 Roland Gardens, S.W.7. (Bot., Orn.)
 1938 Paddington Public Libraries (H. J. W. Wilson, A.L.A.), Porchester Road,
 W.2.
 1952 Padwick, H. N., 13 Lawrence Road, Pinner, Middx. (Orn.)
 H 1952 Paine, Miss V. A., 79 Fifth Cross Road, Twickenham, Middx. (Bot., Geol.)
 1950 Palmer, Miss J., 21 Holland Street, W.8. (Orn.)
 1950 Palmer, K. H., Cold Blow House, Bexley, Kent. (Orn.)
 1944 Panchen, A. L., 21 Rowan Road, S.W.16. (Ecol., Ent., Rep.)
 1952 Pannett, Mrs. O., 11 Chadwell Street, E.C.1. (R.)
 1947 Parish, E. L., Oak Tree Cottage, Hillcrest Gardens, Hinchley Wood,
 Esher, Surrey. (Bot., Ecol., Orn.)
 1948 Park, V. C., Flat K, Belvedere Court, Upper Norwood, S.E.19. (Orn.)
 1938 Park, W. D., 8 Worcester Park Road, Worcester Park, Surrey. (Ecol.,
 Orn.)
 1946 Parkinson, Mrs. G. M., B.Pharm., Ph.C., School of Pharmacy, 17 Blooms-
 bury Square, W.C.1. (Orn.)
 1953 Parkinson, C. D., Brackenber, 9 Wieland Road, Northwood, Middx. (Orn.)
 * 1952 Parmenter, L., F.R.E.S., 94 Fairlands Avenue, Thornton Heath, Surrey.
 (Bot., Ecol., Ent. (esp. Dipt.), Orn., Pl. G.)
 1946 Parmenter, Miss B. M., 94 Fairlands Avenue, Thornton Heath, Surrey.
 (Biol.)
 1948 Parr, D., 20 Filby Road, Chessington North, Surrey. (Orn.)
 1938 Parrinder, E. R., "Trewent", 91 Weald Road, Sevenoaks, Kent. (Ecol.,
 Orn., R.)
 1938 Parrinder, Mrs. E. R., "Trewent", 91 Weald Road, Sevenoaks, Kent.
 (Ecol., Orn., R.)
 1952 Parslow, J. L. F., 66 Mansfield Hill, Chingford, E.4. (Orn.)
 1945 Parsons, C. H. F., 37 Court Farm Road, Northolt, Greenford, Middx.
 (Orn.)
 1952 Parsons, Miss E. M., 12 The Meadway, Buckhurst Hill, Essex.
 H 1951 Parsons, R. J., 19 Alexandra Gardens, Hounslow, Middx. (Arch., Geol.,
 Orn.)
 1950 Pascal, Miss R., 21c Bramshill Gardens, N.W.5. (Orn.)
 1952 Paterson, Miss N., 3a Victoria Grove, W.8. (Orn.)
 1946 Patey, D. H., M.S., F.R.C.S., 11 Meadway Close, N.W.11. (Orn.)
 1953 Patten, D. E., 204 Whitefoot Lane, Bromley, Kent. (Orn.)
 1949 Pattison, J. R., 84 Fairlands Avenue, Thornton Heath, Surrey. (Orn.)
 1933 Paulson, C. W. G., M.B.O.U., F.Z.S., c/o The Monotype Corporation Ltd.,
 Salfords, Redhill, Surrey. (Arch., Orn.)
 1923 Payne, E. M., Tilgate, Long Lane, Hillingdon, Middx. (Bot., Orn.)
 1952 Payne, L. W., 120 Byng Drive, Potters Bar, Middx. (Orn.)
 * 1942 Payne, R. M., 8 Hill Top., Loughton, Essex. (Bot., Ecol., Ent., Orn.)
 1948 Payne, R. W., 21 Norfolk Road, St. John's Wood, N.W.8. (Orn.)
 1944 Payton, H. W., Lianda, Hill Close, Harrow, Middx. (Arch., Bot., Orn.)

- 1952 Peake, J. F., Benthall Hall, 31-43 Cartwright Gardens, W.C.1. (Orn.)
 1935 Pearce, B. S. K., 10 Eyre Close, Gidea Park, Essex. (Bot., Ent., Orn.)
 1953 Pearson, A. J., Front Lodge, Guy's Hospital, S.E.1. (Bot., Orn.)
 1932 Pedler, E. G., 3 Beechcroft Road, East Sheen, S.W.14. (Orn., R.)
 1945 Pegram, D. C., 44 Combemartin Road, S.W.18. (Ecol., Orn.)
 1946 Perkins, Mrs. V., 53 Rectory Road, E.17. (Orn.)
 1948 Perry, Miss E., 13 Camberley Avenue, West Wimbledon, S.W.20. (Bot., Orn.)
 1949 Perry, J., 90 Villiers Road, Willesden Green, N.W.2. (Orn.)
 1937 Peterken, J. H. G., F.L.S., 73 Forest Drive East, E.11. (Bot., Ecol., Geol., Orn.)
 1952 Petrie, Miss B., 55 Gloucester Avenue, N.W.1. (Orn.)
 1950 Pettersson, M. L. R., M.A., Ph.D., F.L.S., 9 Mellows Road, Ilford, Essex. (Graminae)
 1949 Pettit, A. V., 148 Graham Road, Hackney, E.8. (Orn.)
 1951 Phear, Dr. D. N., address not known. (Bot., Orn.)
 1951 Phear, Miss E. A., Sussex Lodge, Sussex Place, Regent's Park, N.W.1. (Bot., Orn.)
 1952 Phillips, A., Clarendon House, Granville Park, S.E.13. (Orn.)
 1949 Phillips, Miss G., 31 Green Lane, Hendon, N.W.4. (Orn.)
 1951 Pickess, B. P., 23 Pembroke Road, Ruislip, Middx. (Orn.)
 H 1952 Pierce, C. W., 125 Heath Road, Hounslow, Middx. (Arch., Bot., Ent.)
 H 1952 Pierce, Miss M. N., 125 Heath Road, Hounslow, Middx. (Bot.)
 1937 Piercy, K., Clifton Cottage, Clifton, Beds. (Orn.)
 1897 Pike, Oliver, G., F.Z.S., Hon. F.R.P.S., F.I.B.P., The Bungalow, Leighton Buzzard, Beds. (Orn.)
 1943 Pilcher, Miss E. V., "Tringa", 5 Roy Road, Northwood, Middx. (Bot.)
 1949 Pilkington, R. C. L., Little Fanham, Ware, Herts. (Orn.)
 1952 Pimm, F., 12 Montem Road, Forest Hill, S.E.23. (Orn.)
 1947 Pinchin, Miss E. M. S., 10 Iverna Court, Kensington, W.8. (Orn.)
 1931 Pinniger, E. B., F.R.E.S., "Littlecote", 19 Endlebury Road, Chingford, E.4. (Ecol., Ent., Orn., R.)
 1951 Pitman, Capt. C. R. S., C.B.E., D.S.O., M.C., Flat 9, No. 12 Chelsea Embankment, S.W.3. (Orn.)
 1941 Pitt, Miss Frances, The Albynes, Bridgnorth, Salop. (Mam., Orn.)
 1949 Platt, John, 50 Park Avenue, Eastbourne, Sussex. (Orn.)
 1949 Platt, Miss M. H., Clipstone, Gloucester Road, Kingston Hill, Surrey. (Orn.)
 1950 Playle, B. T., Flat 2, 65 Ladbroke Grove, W.11. (Orn.)
 1951 Pocock, S. A. J., B.Sc., F.G.S., 10 Ravensbourne Park, Catford, S.E.6. (Geol.)
 1925 Poock, S. G., 65 Milton Road, Harpenden, Herts. (Api., Ecol., Orn.)
 1952 Pope, Dr. Samuel, St. Helen's, Liss, Hampshire. (Orn.)
 1946 Porter, Miss B. M. M., 13 Hurstbourne Gardens, Barking, Essex. (Bot., Orn.)
 1953 Porter, D. L. H., 4 Harley House, Marylebone Road, N.W.1. (Bot.)
 1947 Powell, Miss B. M., Flat 5, 50 Netherhall Gardens, Hampstead, N.W.3. (Orn.)
 1948 Pratt, H. M., Stone House, near Dartford, Kent. (Bot., Orn.)
 1951 Pratt, 22598817 L/Cpl. N. H., Hut 9, 2 Pltn., 3 Sec., C.A.D. (F.S.), Norton Camp, Cuckney, near Mansfield, Notts. (Orn.)
 1952 Prevost, Miss C. A., "Trevena", 94 Great North Way, Hendon, N.W.4. (Ent., Orn.)
 1951 Prichard, Miss E., 25 Westbourne Terrace, W.2. (Orn.)
 1952 Pring, Lt.-Col. W., The Old House, Hollingbourne, Kent.
 1946 Proctor, Miss H. G., Bedford College for Women, Regent's Park, N.W.1.
 1950 Pugh, Miss M. E., 14 Daleham Gardens, Hampstead, N.W.3. (Orn.)
 1952 Purry, Miss J., 45 Deerings Road, Reigate, Surrey. (Orn.)
 1946 Pyle, M. A., B.Sc. (Tech.), A.M.C.T., 45 Holne Chase, Morden, Surrey. (Orn.)
 1949 Quilter, B. S., 28 Mountgrace Road, Potters Bar, Middx. (Orn.)

- 1949 Radcliffe, Miss L., 8 Elm Row, Hampstead, N.W.3. (Orn.)
 1952 Radford, F. W. P., 9 Pinewood Close, Shirley, Surrey. (Orn.)
 1952 Rampling, W. A., 17 Prebend Gardens, Chiswick, W.4. (Orn.)
 1945 Ramsden, Miss D. H., 147 Barlow Moor Road, West Didsbury, Manchester, 20.
 1949 Rand, Miss B., Southolme, 41 Waterlow Road, Reigate, Surrey. (Orn.)
 1951 Rapley, E. E., 255 Wanstead Park Road, Ilford, Essex. (Arch.)
 1951 Ray, C. M., 12 Ashley Gardens, Petersham, Surrey. (Arch., Orn.)
 * Ray, Miss T., 2 Ashley Park, Rusthall, Tunbridge Wells, Kent. (Arch., Bot.)
 1945 Raynham, Miss M., 36 Villiers Avenue, Surbiton, Surrey. (Orn.)
 1951 Rayns, D. G., 82 Auckland Road, Upper Norwood, S.E.19. (Orn., R.)
 1948 Reed, Miss M. W., 40 Ringstead Road, Catford, S.E.6. (Geol., Orn.)
 1950 Reese, Surgeon-Commander J. M. R.N., c/o Lloyds Bank Ltd., 263 Tottenham Court Road, W.1. (Orn.)
 1930 Reeve, Miss E. A., The Penn Club, 22 Bedford Place, W.C.1. (Bot., Ecol., Ent., Orn., R.)
 1952 Reid, Miss R. P., 58 Clarence Avenue, New Malden, Surrey. (Orn., R.)
 1949 Reuby, M. J., 49 Priory Crescent, North Cheam, Surrey.
 1950 Reynell, Mrs. S., Wollaston, Oakleigh Park North, N.20. (Orn.)
 1949 Rhodes, F., 27 Carleton Road, N.7. (Ecol., Ent., Orn.)
 1943 Richards, B. A., 29b St. John's Avenue, S.W.15. (Orn.)
 1951 Richards, Miss C. L. C., 88 Gloucester Court, Kew Gardens, Richmond, Surrey. (Bot., Ecol., Orn.)
 1948 Richardson, A. E., 391 Malden Road, Worcester Park, Surrey. (Lep.)
 1952 Richardson, Miss D., 32 Bramham Gardens, S.W.5. (Bot., Orn.)
 1948 Richardson, H. L., Ph.D., 62 Canfield Gardens, N.W.6. (Orn.)
 1950 Richardson, P., 1 Capthorne Avenue, Harrow, Middx. (Orn.)
 1948 Ridpath, M. G., Tynings, Cobden Hill, Radlett, Herts. (Orn.)
 1951 Rigden, R. G., 23 Matfield Road, Upper Belvedere, Kent. (Ent., Orn.)
 1949 Rignall, J. N. A., 1 Cyril Mansions, Prince of Wales Drive, Battersea Park, S.W.11. (Orn.)
 H 1952 Roberts, A. D., 76 Lampton Road, Hounslow, Middx. (Orn.)
 1934 Roberts, J. E., B.Sc., 76 Hough Green, Chester. (Ecol., Orn.)
 1950 Roberts, J. T., 43 Campden Hill Square, W.8.
 1952 Robins, Miss M. E., 8 Burnt Ash Villas, Effingham Road, Lee, S.E.12. (Bot., Ecol., Orn.)
 H 1946 Robins, W. A., 36 Spencer Road, Chiswick, W.4. (Orn.)
 1947 Robinson, Miss A., Flat G1, Sloane Avenue Mansions, S.W.3.
 1952 Robinson, Miss M. G., 30 Holland Park, W.11. (Orn.)
 1952 Rodgers, B., The Coppice, Kingswood Road, Bromley, Kent. (Orn.)
 1949 Rook, Miss D. A., 55 Chesterfield Road, West Ewell, Surrey. (Orn.)
 1937 Rose, C. C., 18 Draycott Avenue, Kenton, Middx. (Orn.)
 * 1910 Ross, J., 23 College Gardens, E.4. (Bot., Ent., Orn., Pl. G.)
 1943 Round, E. A., 26 Frederica Road, Chingford, E.4. (Arch., Ecol., Geol.)
 1950 Routledge, Miss B., Flat 54, 99 Haverstock Hill, N.W.3. (Orn.)
 1947 Rudd, H.W., M.Sc., F.R.I.C., 19 Ormonde Rise, Buckhurst Hill, Essex. (Orn.)
 1950 Rule, A. W., 203 High Road, Tottenham, N.15. (Bot., Ent., Geol., Orn.)
 1947 Rumbold, T. A., 95 Rivermead Court, S.W.6. (Orn.)
 1951 Russell, Mrs B. H. S., 4a Lower Grosvenor Place, S.W.1. (Bot.)
 1941 Rutherford, Mrs. P., 82 Southgate Road, Potters Bar, Middx. (Orn.)
 1950 Rutledge, W., M.A., F.R.E.S., 2 Feldmore Cottages, Holmbury House, Holmbury St. Mary, near Dorking, Surrey. (Ecol., Ent., Orn.)
 1951 Ryan, Miss H., 3 Prebend Mansions, Chiswick, W.4. (Ecol., Ent., Orn.)
 * 1942 Ryall, R. H. M., 24 Stilecroft Gardens, Wembley, Middx. (Orn.)
 1949 Sabin, Miss D. M., 27 Langbourne Avenue, N.6. (Orn.)
 1948 Sage, B. L., F.R.E.S., 138 Fitzjohn Avenue, High Barnet, Herts. (Ent., Orn.)
 1951 St. Barbe, Miss O., 3 Grove Terrace, Highgate Road, N.W.5. (Orn.)
 1952 St. Hill, Miss M. M., 19 Holroyd Road, Putney, S.W.15. (Orn.)

- 1948 Salter, S. C. M., 50 Pinewood Avenue. New Haw, Weybridge, Surrey. (Orn.)
- 1929 Sampson, E. S., "Nuthatch". Harriotts Lane, Ashtead, Surrey. (Orn.)
- 1950 Samuel, Miss B. F. M., 27 Yew House, Shardeloes Road, S.E.14. (Orn.)
- 1946 Sanday, Miss M. G., 12 Albion Road. Sutton, Surrey. (Orn.)
- 1949 Sander, Miss H. K., 87b Hornsey Lane. Highgate, N.6. (Orn.)
- 1951 Sandy, Miss M. L. M., 136 Maidstone Road, N.11. (Arch., Ecol., Orn.)
- 1951 Sanecki, Mrs. K. N., Keeper's Cottage, Sheepbridge. Little Marlow, Bucks. (Bot.)
- 1950 Sartoris, Miss E., 17 Neville Street, S.W.7. (Orn.)
- 1951 Saunders, R. J., Chart Cottage East, Nutfield Road, Redhill, Surrey.
- 1947 Saunders, Miss W. H., 18 Herne Hill, S.E.24. (Orn.)
- 1952 Savitt, I., 250 Victoria Park Road, Hackney, E.9. (Orn.)
- 1946 Sawyer, Mrs. K., 27 Cuckoo Hill Road. Pinner, Middx. (Bot.)
- 1950 Sayer, Miss M., Vermont, Lower Brinley, Bovey Tracey, Devon. (Bot.)
- 1950 Sayers, T. J., 84 Coburg Buildings, Francis Street, Westminster, S.W.1. (Orn.)
- 1948 Schofield, Miss G. E., 135 Hainault Road, Leytonstone, E.11.
- 1952 Scholes, R. T., 70 Cornwall Gardens, S.W.7. (Bot., Ecol., Ent., Orn.)
- 1946 Scholey, Miss M. A. R. S., Flat 29, 20 Stuart Crescent, Wood Green, N.22. (Bot., Ecol., Ent., Geol., Orn.)
- 1950 Scholey, W. E., 23 Burstow Road, Wimbledon, S.W.20. (Bot., Orn.)
- 1937 Scott, Miss E. M. P., 7 Broomfield Road, Kew Gardens, Surrey. (Arch., Orn.)
- 1952 Scott, G. L., 103 Royal Road, S.E.17. (Bot., Ecol., Orn.)
- 1947 Scott, Peter M., M.B.E., D.S.C., M.A., F.Z.S., New Grounds, Slimbridge, Gloucestershire. (Orn.)
- 1953 Searle, Miss D., 95 Manor Way. Mitcham, Surrey. (Orn.)
- 1950 Sedergreen, Miss R. C., 15 York Street Chambers, York Street, W.1. (Bot., Orn.)
- 1952 Seeds, Sir William, K.C.M.G., 99 North Gate, N.W.8.
- 1953 Seel, D. C., Church Cottage, Church Lane, Pinner, Middx. (Orn.)
- 1952 Selby, C., 35 St. Ronan's Crescent, Woodford Green, Essex. (Bot.)
- 1948 Sellick, G., Highgate School, N.6. (Ent.)
- 1951 Semmens, Miss J. A., The Nurses' Home, St. Bartholomew's Hospital, E.C.1. (Bot., Geol., Orn., R.)
- 1950 Sergeant, C. W. H., 16 Welbeck Court, Addison Bridge Place, W.14.
- 1953 Sergeant, G. A., 70 Cornwall Gardens, S.W.7. (Bot., R.)
- 1949 Seth-Smith, D. W., M.R.C.S., L.R.C.P., 11 Stanford Court, Cornwall Gardens, S.W.7. (Orn.)
- 1947 Sharland, R. E., United Africa Co., Ltd., Burutu, Delta Province, Nigeria. (Orn.)
- 1945 Shaw, Miss M. B., 74 Trinity Rise, Tulse Hill, S.W.2.
- 1949 Shaw, R. G., 5 Burnham Road, Chingford, E.4. (Lep.)
- H 1952 Shelmerdine, Miss S. A., 7 Alderney Avenue, Lampton, Hounslow, Middx. (Bot., Zoo.)
- 1952 Shepherd, I. S., 173 Rye Lane, Peckham, S.E.15. (Ent., Orn.)
- 1950 Sheppard, R. J. N., 43 Alexandra Road, Hounslow, Middx. (Arch., Orn., R.)
- 1952 Shergold, B., 70 Wickham Avenue, Cheam, Sutton, Surrey. (Orn.)
- 1935 Shill, W. A., Barberries, Greenhurst Lane, Oxted, Surrey. (Bot.)
- 1947 Shillito, J. F., B.Sc., 28 Roebuck Lane, Buckhurst Hill, Essex. (Ecol., Ent.)
- H 1952 Shinn, Miss P., 5 Bramley Close, Whitton, Middx.
- 1929 Short, G. R. A., F.L.S., 36 Parkside Drive, Edgware, Middx. (Bot., Ecol., Micro., Pharmacognosy)
- 1952 Sills, E. C., 92 Madeira Avenue, Bromley, Kent. (Bot., Orn., R.)
- 1946 Simister, J. M., 27 Handen Road, Lee, S.E.12. (Ecol., Orn.)
- 1946 Simmonds, P. E. L., 30 Westmere Drive, N.W.7. (Ecol., Orn.)
- 1943 Simmons, G. W., Mayeswood, 18 Queen Eleanor's Road, Guildford, Surrey.

- 1951 Simms, E. A., 68 Brook Road, Cricklewood, N.W.2.
 1949 Simpson, Mrs. D., Headley, Mount Ararat Road, Richmond, Surrey, (Bot.)
 1947 Sims, C. G., River Plate House, 13 South Place, E.C.2.
 1945 Singleton, H. G. H., 29 Decoy Avenue, Golders Green, N.W.11. (Arch., Geol., Orn., R.)
 1945 Singleton, S. H., 56 Harrowes Meade, Edgware, Middx. (Bot., Orn.)
 1948 Skeggs, R. L. D., "Burnham", Albany Crescent, Claygate, Surrey. (Orn.)
 1948 Skibicki, J., 16 Champion Grove, Denmark Hill, S.E.5. (Bot., Ecol., Ent., Orn.)
 1933 Skrimshire, E. H. N., F.R.A.I., F.Z.S., 5 Old Well House, N.6. (Arch., Orn., R.)
 1952 Slack, C. M., 31 Manor Road North, Esher, Surrey. (Bot., Geol.)
 1950 Slade, W., Broadwater Cottage, Groombridge, Tunbridge Wells, Kent. (Orn.)
 1949 Slocombe, N. R., 10 Heath Drive, N.W.3. (Arch., Orn.)
 1951 Small, D. W., M.A., Bucks Hill Bottom, Kings Langley, Herts. (Arch., Bot., Ecol., Orn.)
 H 1952 Small, W. G., 13 Woodfield Crescent, Ealing, W.5.
 1952 Smart, Miss D., 36 Vancouver Road, S.E.6. (Orn.)
 1946 Smith, A. H. V., 96 Berkshire Gardens, Palmers Green, N.13. (Bot., Ecol., Orn.)
 H 1952 Smith, Miss H. M., 55 Queen's Road, Feltham, Middx. (Bot., Geol.)
 1937 Smith, Malcolm A., M.R.C.S., L.R.C.P., F.Z.S., Branksome, Old Woking Road, Pyrford, Surrey. (Amph., Rep.)
 1951 Smith, P. G., 27 Beatrice Road, Southall, Middx.
 1947 Smith P. R., Sunnyways, Acrefield, Gerrards Cross, Bucks. (Ent.)
 * 1927 Solly, Miss B. N., 167 Old Brompton Road, S.W.5. (Orn.)
 1946 Souter, Mrs. Eileen, 12 Mount Carmel Chambers, Dukes Lane, W.8. (Orn.)
 1951 Spearman, R. I., B.Sc., Oaks Bungalow, Oaks Avenue, S.E.19. (Ecol., Geol.)
 1950 Speed, W. W., 49 Highwood Avenue, North Finchley, N.12. (Orn.)
 1948 Spence, Mrs. A. K., 12 Glenilla Road, Hampstead, N.W.3. (Orn.)
 1950 Spence, G. J., 12 Glenilla Road, Hampstead, N.W.3. (Bot., Orn.)
 1946 Spencer, K. J., 17 Maple Close, Culvers Avenue, Carshalton, Surrey. (Orn.)
 1952 Spencer, R., 171 Victoria Road, Romford, Essex. (Orn.)
 1952 Spiegler, Dr. G., D.Phil., F.Inst.P., 8 Newton Grove, W.4, and at The Royal Cancer Hospital, Fulham Road, S.W.3. (Orn.)
 1952 Spillett, A. W., 5 Temple Close, Bury Green, Cheshunt, Herts. (Geol.)
 1922 Spooner, H., 21 Musgrave Crescent, S.W.6. (Arch., Bot., Ecol., Geol., Orn., R.)
 1952 Spratt, M. W., 44 Ember Farm Way, East Molesey, Surrey. (Orn.)
 1944 Spreadbury, W. H., 35 Acacia Grove, New Malden, Surrey. (Bot., Ecol., Ent., Orn.)
 1948 Springett, Miss K. E., 26 Retcar Street, Highgate, N.19. (Bot., Orn., R.)
 1944 Spurway, Miss H., Ph.D., Dept. of Biometry, University College, W.C.1. (Herpet., Zoo.)
 1949 Staines, Miss V. A., 23 Clifton Road, Finchley, N.3.
 H 1952 Stark, Miss D. M., 32 Strathearn Avenue, Whitton, near Twickenham, Middx. (Orn.)
 1950 Starling, W. L., 247 Kingston Road, Ewell, Surrey. (Orn.)
 1951 Steele, R. C., 7 Devonshire Avenue, Sutton, Surrey. (Orn.)
 1952 Stephenson, C. L. C., Clovelly, 27 White Horse Road, East Ham, E.6. (Zoo.)
 1903 Stevenson, H. E., F.C.S., 290 Fir Tree Road, Epsom Downs, Surrey. (Chem.)
 1951 Stevenson, Miss I., 6 Bridge Gardens, East Molesey, Surrey. (Bot., Orn.)
 1952 Stevenson, P., 7 Franklyn Gardens, Hainault, Ilford, Essex. (Orn.)
 1952 Stephenson, Miss V. E., "Genista", 229 Southend Road, Rochford, Essex. (Bot., Orn.)

- 1951 Stiff, W. J., 4 Mostyn Road, Wimbledon, S.W.19.
 1949 Stock, Miss M. H., 26 Hillcrest Road, Acton Hill, W.3. (Arch., Orn.)
 1952 Stoller, B., 73 King Henry's Road, N.W.3.
 1952 Stone, Mrs. G. A., 2 Fraser House, Albion Avenue, S.W.8. (Arch., Bot., Ent., Orn.)
 H 1952 Stratford, Miss J. B. M., 89 Crane Avenue, Isleworth, Middx. (Bot., Ecol., Ent., Zoo.)
 1950 Street, Dr. D. F., 38 Lansdowne Road, N.3. (Orn.)
 1950 Stride, P. F., 56 Gade Avenue, Watford, Herts. (Orn.)
 1950 Stromberg, Miss E. I., 28 Hollingbourne Gardens, Ealing, W.13. (Orn.)
 1953 Stroud, T., 131 Abbey Road, Hampstead, N.W.6. (Orn., Zoo.)
 1945 Sturrock, W. D., 17 Woodside Close, Tolworth, Surbiton, Surrey.
 1948 Summers, D. J., 71 Rugby Road, Dagenham, Essex. (Orn.)
 1952 Sumpter, Miss E. E., 51 Lancaster Gate, W.2. (Bot., Orn.)
 1952 Swann, Miss M. J., 2 Castlemain Avenue, Ewell East, Surrey.
 1949 Sylverton, H., address not known. (Arch., Ent., Geol., Orn.)
 1952 Syms, Mrs. A., 48 Palewell Park, East Sheen, S.W.14.
 1944 Syms, E. E., F.R.E.S., 22 Woodlands Avenue, E.11. (Ent.)
 1948 Tabori, P., 14 Stafford Terrace, Kensington, W.8. (Orn.)
 1948 Tate, P., Sunnyside, The Clump, Rickmansworth, Herts. (Orn.)
 1946 Taylor, G., 23 Belsize Crescent, Hampstead, N.W.3. (Orn.)
 1946 Taylor, J. E., 5 Hobart Road, Worcester Park, Surrey. (Orn.)
 1945 Teagle, W. G., F.Z.S., Flat 6, No. 2 The Paragon, Blackheath, S.E.3. (Arch., Ecol., Orn.)
 1947 Tearnan, L. C., 7 Greystoke Gardens, Enfield, Middx. (Orn.)
 1950 Teasdale, Miss M., address not known. (Bot., Orn.)
 1953 Tebbitt, A. M., The Cottage, Miles Pit Hill, Mill Hill Village, N.W.7. (Ent., Orn.)
 1951 Templemore, E. H. L., 132 Merton Hall Road, Wimbledon, S.W.19. (Geol., Orn.)
 1950 Thacker, D. M. D., 64 Blenheim Chase, Leigh-on-Sea, Essex. (Arch.)
 1951 Thackeray, Miss R. M., 3 Collingham Road, S.W.3.
 1920 Thomas, Mrs. G. E., 9 Talbot Road, Isleworth, Middx. (Orn., R.)
 1947 Thompson, A. G. G., 139 Highlands Heath, S.W.15. (Ecol., Orn.)
 1945 Thompson, A. J. B., 218 The Headlands, Northampton. (Orn.)
 1952 Thompson, D. H., The Haylands, Chigwell, Essex. (Orn.)
 1950 Thompson, Dr. Mary C., 16 Elmwood Road, Herne Hill, S.E.24. (Bot., esp. Flowering Plants)
 1948 Thomson, Dr. K. D. B., 76 Brondesbury Road, Kilburn, N.W.6. (Orn.)
 1945 Thomson, W. W., M.B., Ch.B., 51 Norbury Court Road, S.W.16. (Orn.)
 1953 Thornley, Miss I., 69 Coleridge Road, Hornsey, N.8. (Bot.)
 1946 Thornton, J. O., Southdown Hall Hotel, The Downs, S.W.20. (Orn.)
 1947 Timson, P. F., B.Sc., A.R.I.C., 85 Dollis Hill Avenue, Cricklewood, N.W.2. (Geol.)
 1945 Titmas, Miss M., 479 Kensington Close, Wrights Lane, W.8. (Orn.)
 1932 Todd, Miss G. E., 68 Ladbroke Grove, W.11. (Bot., Orn., R.)
 1945 Toombs, H. A., British Museum (Natural History), Cromwell Road, S.W.7. (Bot., Geol., Orn.)
 1952 Toomer, Miss P., The Limes, Fitzroy Park, Highgate, N.6. (Orn.)
 1949 Toop, Dr. B. M., White Lodge, Enfield, Middx. (Orn.)
 1949 Toop, Mrs. N. M., White Lodge, Enfield, Middx. (Orn.)
 1950 Tooth, G. C., "Arncliffe," Radlett, Herts. (Orn.)
 1946 Tourell, Miss M. D., 38 Ismailia Road, Forest Gate, E.7. (Geol.)
 1892 Tremayne, L. J., 18 Greenfield Crescent, Brighton 6, Sussex. (Arch., Bot., Lep., Orn., Pl. G., R.)
 1951 Tucker, Miss N. G., 7 Cleveland Road, Ealing, W.13. (Arch., Orn.)
 1949 Turner, B., 52 Skeena Hill, S.W.18. (Orn.)
 1947 Turner, C. F., 24 Chesham Road, Anerley, S.E.20. (Orn.)
 1949 Turner, Miss M., 52 Skeena Hill, S.W.18. (Orn.)
 1953 Turrill, E. F., 7 Charminster Avenue, Merton Park, S.W.19. (Orn.)
 1951 Underwood, Miss E., 12 St. Leonard's Terrace, Chelsea, S.W.3.

- 1937 Upton, Mrs P. V., M.B.O.U., Park Lodge, Margaretting, Ingatestone, Essex. (Orn.)
- 1953 Upward, E. F., 153 Turney Road, Dulwich, S.E.21. (Bot.)
- 1952 Usher, Miss B. A., c/o 153 Whitechurch Lane, Edgware, Middx. (Bot., Orn.)
- H 1952 Varty, J., 1 Wyresdale Crescent, Perivale Park, Middx. (Pond life)
- 1948 Versteegh, Miss M. E., 36 Palewell Park, East Sheen, S.W.14. (Ent.)
- 1952 Viewing, Miss M., 19 Fulford Road, West Ewell, Surrey. (Bot., Geol.)
- 1953 Vigne, M. H., 81 Barons Court, Church Lane, Kingsbury, N.W.9. (Orn.)
- 1933 Vincent, W. G., 154 Winchester Road, Hale End, E.4. (Orn.)
- 1950 Wade, Miss M. G., Hopkinson House, 88 Vauxhall Bridge Road, S.W.1. (Bot., Orn.)
- 1946 Wadley, N. J. P., 14 Elm Place, S.W.7. (Orn.)
- 1949 Waghorn, Miss E., 68 Whitcher Street, New Cross, S.E.14. (Orn., R.)
- 1950 Wain, Miss M. E., Hopkinson House, 88 Vauxhall Bridge Road, S.W.1. (Bot., Orn.)
- 1951 Walker, Miss J., 16 Edmonscote, Argyle Road, Ealing, W.13. (Bot., Ecol.)
- 1951 Walker, P. J., 25 Regal Way., Preston, Harrow, Middx. (Dipt.)
- 1948 Wall, G. L., "Hafod", Merstham, Surrey. (Ent., Orn.)
- 1949 Wallace, D. I. M., Little Westfield Court, Westfield Road, Bishop's Stortford, Herts. (Orn.)
- 1951 Wallace, E. B., 17 Greenway, Totteridge, N.20., Herts. (Orn.)
- 1947 Wallace, E. C., 2 Strathearn Road, Sutton, Surrey. (Bot., Bryol., Ecol.)
- 1927 Waller, G., 158 Beckenham Road, Beckenham, Kent. (Ecol., Ent., Orn.)
- 1952 Waller, Mrs. M., 77 Princes Avenue, W.3. (Orn.)
- 1952 Waller, S., 14 South Esk Road, Forest Gate, E.7. (Geol., Mycol.)
- 1950 Wallis, Miss I., 14 Kensington Court, W.8. (Orn.)
- 1946 Walter, C. N., 32 Stanley Avenue, Beckenham, Kent. (Orn.)
- 1946 Walter, Mrs. V., 32 Stanley Avenue, Beckenham, Kent. (Orn.)
- 1938 Warburg, G. O., 1 Woodside, Erskine Hill, N.W.11. (Orn.)
- 1943 Ward, Mrs. A., 13 Chatham Road, E.17.
- 1925 Ward, B. T., 24 Long Deacon Road, E.4. (Bot., Ecol., Ent., Orn., Pl. G., R.)
- 1947 Ward, F. A. B., M.A., Ph.D., 11 The Close, Southgate, N.14. (Arch., Orn.)
- 1933 Ward, Miss I. W., 11 The Close, Southgate, N.14.
- 1952 Ward, M. D., 158 Stradbroke Grove, Ilford, Essex. (Orn.)
- 1948 Warmington, Prof. E. H., M.A., F.R.Hist.S., 48 Flower Lane, Mill Hill, N.W.7. (Bot., Orn.)
- 1946 Warren, R. B., 38 Athelstan Road, Harold Wood, Romford, Essex. (Orn.)
- H 1947 Waters, F. H., "Korcula", Riverside Close, Staines, Middx. (Orn.)
- 1950 Waters, S., 55 Aberdare Gardens, N.W.6. (Orn.)
- 1952 Watson, A. B., 129 Gower Street, W.C.1. (Orn.)
- 1951 Watson, Miss B., 5 Top Park, Beckenham, Kent. (Orn.)
- 1953 Watson, J. V., 64 Cecile Park, Crouch End., N.8. (Geol., Orn.)
- 1942 Watt, Mrs. E. C., 13 Park Road, N.W.1. (Orn.)
- * 1925 Watt, Mrs. W. Boyd, M.B.O.U., 39 Christchurch Road, Bournemouth, Hants. (Arch., Ecol., Orn.)
- * 1938 Wattson, Miss A. E., 43 Salisbury Road, Worcester Park, Surrey. (Ent., Orn.)
- 1952 Wayman, Miss S., Minster, Church Road, Stanmore, Middx. (Orn.)
- 1946 Weal, R. D., 124 Marmion Avenue, South Chingford, E.4. (Ent.)
- 1928 Weeks, C., 7 Ashmount Road, Hornsey Lane, N.19. (Ecol., Orn., R.)
- 1950 Weiss, F. R. M., 24 Overbury Avenue, Beckenham, Kent. (Bot., Ecol.)
- 1946 Weitzel, D. O., B.Sc., A.K.C., F.L.S., F.Z.S., 294 Hillcross Avenue, Morden, Surrey.
- 1944 Welch, Mrs. B., 49 Lichfield Court, Richmond, Surrey. (Bot., Geol.)
- 1939 Welford, Miss A. M., 13 Clifton Avenue, N.3. (Orn.)
- 1951 Welford, Miss E. K., 48 Kingshill Drive, Kenton, Harrow, Middx. (Arch., Orn.)
- 1950 West, K. H., 117 Mayplace Road East, Barnehurst, Kent. (Orn.)
- 1949 Westall, P. R., M.B., B Ch., address not known. (Orn.)

- 1953 Westcott, S. W., 44 Rosemont Road, Richmond, Surrey. (Orn.)
- H 1952 Westrup, A. W., 259 Hanworth Road, Hounslow, Middx. (Bot., Ecol.)
- 1952 Whalley, Miss C. A., 17/19 Egerton Terrace, Kensington, S.W.3. (Arch., Bot., Ecol., Geol., Orn., R.)
- * 1950 Wheeler, A. S., "Courtside", 21 Shelveys Way, Tadworth, Surrey. (Lep.)
- 1948 Wheeler, A. W., 156 Bridgewood Road, Worcester Park, Surrey. (Orn., R.)
- 1953 Wheeler, Miss E., 60 Great Cumberland Place, W.1. (Arch., Geol.)
- 1952 Wheeler, W. J., 1 Belmont Close, Totteridge, N.20. (Bot., Orn.)
- 1950 Whiddington, Miss P. J. J., 18 Buckingham Street, W.C.2. (Orn.)
- 1944 Whitaker, Miss M. B., B.Sc., F.Z.S., 264 Grange Road, S.E.19. (Zoo.)
- 1937 White, C. A., 18 Townsend Road, Southall, Middx. (Orn.)
- 1952 White, Miss N. E., 16 Bramham Gardens, S.W.5. (Orn.)
- 1949 White, R., 2 Norwood Terrace, Norwood Green, Southall, Middx. (Orn.)
- 1953 White, Capt. R. F. L., F.G.S., 83 West Side, Clapham Common, S.W.4. (Geol., Orn.)
- 1949 Whitehouse, Mrs. M., 16 Ranelagh Avenue, Barnes, S.W.13. (Bot.)
- 1947 Whitton, Mrs. J. S., Sandcroft, The Green, Esher, Surrey. (Orn.)
- 1952 Whyte, Miss B. H., 49 Sevington Road, N.W.4. (Bot., Orn.)
- 1934 Wightman, J. S., West Heath, Oxted, Surrey. (Orn.)
- 1938 Wigzell, J. A., Oakwood House, Oakwood Road, Burgess Hill, Sussex. (Ecol., Orn.)
- 1942 Wilkinson, J. S., B.A., A.C.A., 26 Golders Rise, N.W.4. (Bot.)
- 1949 Wilks, Miss V. M., 63 Harrow View, Harrow, Middx. (Arch., Bot.)
- 1948 Williams, A., Flat 22, 17 Stratton Street, W.1. (Bot., Ent., Orn.)
- 1952 Williams, Miss C., 73 Rosslyn Avenue, Barnes, S.W.13 (and at 26 Canons Park Close, Donnefield Avenue, Edgware). (Bot., Orn., R.)
- 1952 Williams, Miss C. B., 26 Milverton Drive, Ickenham, Middx. (Bot., Orn.)
- 1948 Williams, E. D., 33 Fellows Road, N.W.3. (Orn.)
- 1952 Williams, G. F., 130 Cranworth Gardens, S.W.9. (Orn.)
- 1952 Williams, R. E. O., 26 Brompton Grove, Hendon, N.W.4. (Geol., Orn.)
- 1952 Willsher, Miss K., 62 Westbourne Drive, Forest Hill, S.E.23. (Geol.)
- 1952 Willson, B. F., 67 Eastmont Road, Hinchley Wood, Esher, Surrey. (Orn.)
- 1942 Wilson, D. Scott, 5 Lawrence Road, South Norwood, S.E.25. (Orn.)
- 1952 Wilson, D. S., 301 Deansbrook Road, Edgware, Middx. (Present address : No. 1, P.H.U., R.A.F., Innsworth, Glos.) (Orn.)
- 1949 Wilson, Miss E. A., 21 Alwyn Avenue, Chiswick, W.4. (Orn.)
- 1952 Wilson, Miss M. C., 47 Frognal, Hampstead, N.W.3.
- 1950 Wilson, Miss M. J., 38 Holmesdale Road, Bexleyheath, Kent. (Bot., Orn.)
- 1946 Wimble, L. H., 10 Broadoaks Way, Bromley, Kent. (Orn.)
- 1948 Wince, Dr. W. H. D., 70 Warham Road, Harrow Weald, Middx. (Ent., Orn.)
- 1938 Winsloe, Mrs. C. M., c/o Lloyds Bank, Ltd., 18 Wigmore Street, W.1. (Orn.)
- 1948 Wolfe-Murray, Lt. Col. D. K., address not known.
- H 1952 Wolff, Frank, 7 Elm Grove Road, Ealing Common, W.5. (Orn.)
- 1942 Wood, B., Vincent's Shaw, Chipstead, Surrey. (Orn.)
- 1953 Woodger, Mrs. J. H., "Tanhurst", Rosebery Road, Epsom Downs, Surrey. (Orn.)
- 1953 Woods, Miss D. E., 58 Beehive Lane, Ilford, Essex. (Orn.)
- 1950 Woods, Miss T. C., 50 Makepeace Mansions, Highgate, N.6. (Orn.)
- 1951 Woolley, F. J., 3 The Ridgeway, Tonbridge, Kent. (Orn.)
- 1944 Woolner, H. C., 6 Cunningham Avenue, St. Albans, Herts. (Orn.)
- 1948 Wortley, Miss P. J., "Collingham", 3 Burlescoombe Leas, Thorpe Bay, Essex. (Orn.)
- 1945 Wright, J. V., 55 Links Road, Ashted, Surrey.
- 1945 Wroughton, F. E., 108 Manor Way, Ruislip, Middx. (Bot., Ecol.)
- 1952 Wyley, J. F., 126 Merry Hill Road, Bushey, Herts. (Arch., Geol.)
- 1937 Yarrow, I. H. H., M.A., Ph.D., D.I.C., F.R.E.S., c/o Brit. Museum (Nat. Hist.), Cromwell Road, S.W.7. (Ecol., Ent.)
- 1952 Yeo, F. M. D., "Bellevue", Carshalton Road, Sutton, Surrey. (Ecol., Orn.)

- 1953 York, E., Flat 2. 5 Keswick Road, S.W.15. (Orn.)
 1952 Youle, Mrs. J. E., 58 Grand Drive, Raynes Park, S.W.20. (Orn.)
 1947 Young H. R. M., 16 Streatham Close, Leigham Court Road, Streatham, S.W.16. (Col., Conch., Geol., Lep.)
 1951 Young, J. L., 50 Willifield Way, Hampstead Garden Suburb, N.W.11. (Orn.)
 1953 Young, Miss M., 20b Thames Side, Staines, Middx. (Bot., Orn., R.)
 1949 Young, R. H. D., 299 Woodstock Road, Oxford. (Orn.)

Affiliated Societies:

- H 1949 Borough Road College Natural History Society (Hon. Secretary : M. G. Lee), Borough Road College, Isleworth, Middx.
 1950 Brentwood School Field Club, Brentwood, Essex. (Representative Member : H. F. Broadbent.)
 1949 Haberdashers' (Aske's) Hampstead School Biological Society, Westbere Road, N.W.2. (Representative Member : T. H. Savory.) (Arach., Bot.)
 1950 Haberdashers' (Aske's) Hatcham Boys' School Natural History Society, Peppys Road, New Cross, S.E.14. (Representative Member : C. A. Allen-Clark, B.A.) (Ecol.)
 1951 Isledon Secondary Boys' School Natural History Society, N.7. (Representative Member : C. B. Tuerk (Geol.))
 1951 Isledon Secondary Boys' School Natural History Society, Seven Sisters Road, N.7. (Representative Member : C. B. Tuerk. (Geol.))
 H 1952 Isleworth Grammar School, Ridgeway Road, Isleworth, Middx. (Representative Member : A. Brierley, B.A., B.Sc.)
 1950 Maria Assumpta Training College, 25 Kensington Square, W.8. (Representative Member : Dr. Hella Czech.)
 1952 Mercers' School Scientific Society, Mercers' School, Holborn, E.C.1. (Representative Member : H. Whate.)
 1947 Mill Hill School Natural History Society (President : D. M. Hall) Mill Hill School, N.W.7.
 1950 Reed's School, Sandy Lane, Cobham, Surrey. (Representative Member : Dr. John Forster.) (Orn.)
 1952 Ruislip and District Nat. Hist. Soc., 59 Pembroke Road, Ruislip, Middx. (Representative Member : D. F. A. Kiddle)
 1952 Ruislip Secondary Modern School Junior Natural History Society. (Representative Member : Miss V. Spurdens, 17 The Greenway, Ickenham, Middx.)
 1952 St. Margaret's School, Bushey, Herts. (Representative Member : Miss M. de la Hay.) (Ecol., Orn.)
 H 1952 Smallberry Green School Nature Club, London Road, Isleworth, Middx. (Representative Member : C. T. Stroud, Headmaster.)
 1953 Twickenham County School, Clifden Gardens, Twickenham, Middx. (Representative Member : Mrs. D. Hoggarth)
 1952 Westminster School Nat. Hist. Society, Westminster School, Little Deans Yard, S.W.1. (Representative Member : E. R. D. French.)

Country Associates:

- 1950 Adair, P. R., 1st. Bt. Coldstream Guards, M.E.L.F. 26. (Geol., Orn.)
 1947 Aldhous, J. R., Jesus College, Oxford. (Bot., Geol.)
 1928 Alexander, O. A., 11 Baring Road, Beaconsfield, Bucks. (Ent.)
 1947 Asham, Mrs. J., address not known. (Orn.)
 1949 Ashby, F., 'Chez Nous', 5 Cissbury Drive, Worthing, Sussex. (Geol.)
 1953 Ashby, J. H., M.Sc., 120 Boundary Road, Chatham, Kent. (Orn.)
 1951 Attlee, H. G., 4 Combermere Road, St. Leonards-on-Sea, Sussex. (Ent., esp. Odonata, Orn.)
 1948 Bannister, H. E., The Red Cottage, Little Heath Lane, Potten End, Berkhamsted, Herts. (Bot., Orn.)
 1948 Basden, E. B., 7 Leyden Park, Bonnyrigg, Midlothian. (Bot., Ent., Geol.)
 1943 Beesley, J. S. S., c/o I.R.L.C.S., Abercorn, N. Rhodesia. (Bot., Ecol., Orn.)

- 1946 Bennett, R. J., 64 Mount View, Moneyhill, near Rickmansworth, Herts. (Orn.)
- 1947 Betchley, D. W., B.A., 60 Goldcroft Avenue, Weymouth, Dorset. (Lep., Orn.)
- 1943 Betteridge, H. W. G., 52 Newton Road, Tunbridge Wells, Kent.
- 1932 Binley, Sister E. M., 9 Silverdale Road, Erdington, Birmingham. 24. (Orn., R.)
- 1950 Blagden, Mrs. V. M., 6 Monckton Road, Alverstone, Hants. (Mycol., Orn.)
- 1948 Blencowe, Miss E. J., P.O. Box 229, Nairobi, Kenya Colony. (Ent., Orn.)
- 1943 Boatman, D. J., 25 College Rooms, Trinity College, Dublin. (Biol., Bot., Ecol., Ent., Orn.)
- 1937 Bond, Mrs M. T., 25 Reedway, Northampton (Orn.)
- 1952 Boswall, J. H. R., 21 Preston Road, Brighton 7, Sussex. (Orn.)
- 1949 Broughton, Miss J. L., address not known. (Orn.)
- 1948 Brown, P. E., Kiln Cottage, Baughurst, Basingstoke, Hants. (Orn.)
- 1948 Brown, Mrs. R. S., Elm Lodge Cottage, Winkfield, Windsor, Berks. (Orn.)
- 1951 Brownlow, Lt.-Col. H. G., Temporary address: Hou Cottage, Alderton, Woodbridge, Suffolk. Permanent address: BM/DIPPER, London, W.C.1. (Orn.)
- 1937 Bunker, H. E., 18 Abingdon Drive, Ashton, Preston, Lancs.
- 1953 Butterley, Miss M. C., Bury Green, Little Hadham, Herts. (Geol.)
- 1950 Carr, D., Home Mead, Monks Road, Virginia Water, Surrey. (Orn.)
- 1936 Cawkell, Major E. M., Port Stanley, Falkland Islands, South Atlantic. (Orn.)
- 1949 Chandler, Miss E. A., Little Gaterounds, Newdigate, Surrey. (Ecol.)
- 1950 Chanter, Miss J. C., 6 The Grove, Gosforth, Newcastle-on-Tyne, 3. (Ecol.)
- 1937 Cockburn, T. A., M.D., Midwestern Office, Communicable Disease Center, Federal Security Agency, Kansas City 6, Mo., U.S.A. (Orn.)
- 1950 Churches, Miss E. W., The White House, Colebrook Street, Winchester, Hants. (Bot., Orn.)
- 1945 Cocks, E., "Crabtree", Hamm Court, Weybridge, Surrey. (Amph., Mam., Rep., Zoo.)
- 1933 Collett, G. W., 174 Sheldon Road, Chippenham, Wilts. (Bot., Ecol., Orn., R.)
- 1951 Collins, Mrs. I. J., Russet Cottage, Station Road, Effingham, Surrey. (Bot., Ecol., Orn.)
- 1946 Collins, L. A., Rose Cottage, Alfriston, Sussex. (Orn.)
- 1952 Course, H. A., Clock House, Royston, Herts. (Orn.)
- 1953 Cranbrook, The Right Hon. the Earl of, Great Glemham House, Saxmundham, Suffolk.
- 1947 Crawford, J. R., 151 Atkinson Road, Fulwell, Sunderland, Co. Durham. (Orn.)
- 1946 Day, P. R., B.Sc., John Innes Horticultural Institution, Bayfordbury, Hertford, Herts. (Bot.)
- 1951 Dickinson, H. J., The Spinney, Wallis Wood, Ockley, Surrey. (Orn.)
- 1945 Dorée, Dr. Charles, Longroof, Hervines Road, Amersham, Bucks. (Ent., Orn.)
- 1926 Ellis, Mrs. W. F., Box 36, B.P.O., Tangier, Morocco. (Orn.)
- 1933 Ferrier, Miss J. M., F.Z.S., M.B.O.U., A.A.O.U., Blakeney Downs, Blakeney, Norfolk. (Ecol., Orn.)
- 1947 Fillmore, L. J., 11 Westfield Avenue, Woking, Surrey. (Orn.)
- 1947 Fillmore, Mrs. N., 11 Westfield Avenue, Woking, Surrey. (Orn.)
- 1949 Fincher, F., Randan Wood, Woodcote, Bromsgrove, Worcs. (Bot., Ecol., Ent., Orn., Zoo.)
- 1951 Fowler, Miss D., Clayton House, Newick, Sussex. (Bot., Orn.)
- 1952 Foy, Miss W., 4 Mill Cottages, Long Road, Cambridge. (Geol., Orn.)
- 1933 Gibson, Miss E. M., St. Cuthbert's, King George Avenue, Petersfield, Hants. (Lep., Orn.)
- 1949—Gillanders, G., c/o Wilson, Sons & Co., Ltd., Apartado 666, Maracaibo, Venezuela. (Geol.)

- 1951 Goodbody, D., "Stoneleigh", Cotterstock Road, Oundle, Peterborough. Northants. (Orn.)
- 1952 Goodliffe, F. D., Whitelands (Lord Wandsworth College), Long Sutton, Basingstoke, Hants. (Ent.)
- 1950 Grasemann, Miss A., 12 Dry Hill Road, Tonbridge, Kent. (Bot., Ent., Orn.)
- 1937 Green, D. B., Church Cottage, Church Hanborough, Oxon. (Orn.)
- 1948 Grenham, R., 40 Elderton Road, Westcliff-on-Sea, Essex. (Bot.)
- 1945 Gurteen, F. M., Honiley, Balcombe Road, Horley, Surrey. (Bot., Orn.)
- 1944 Hager, Miss P. D., Langdale, Ashlyns Road, Berkhamsted, Herts. (Orn.)
- 1948 Hannay, Mrs. P., Breach House, Cholsey, Berkshire. (Orn.)
- 1948 Harley, B. H., Broadwell Manor, near Lechlade, Glos. (Lep., Mam., Orn.)
- 1953 Harley, R. M., Broadwell Manor, near Lechlade, Glos. (Bot., Orn.)
- 1935 Harris, A. H., "Red Hazel", Sullington Gardens, Findon Valley, Worthing, Sussex. (Orn.)
- 1942 Harrison, Major J. L., A.R.C.S., M.Sc., F.R.E.S., Institute for Medical Research, Kuala Lumpur, Malaya. (Ecol., Ent.)
- 1927 Harvey, J. H., Half Moon Cottage, Little Bookham, Surrey. (Bot.)
- 1949 Harvey, J. P., 86 Lenton Boulevard, Nottingham. (Orn.)
- 1946 Hasler, Dr. J. K., Down Wood Lodge, Came, Dorchester, Dorset. (Bot., Orn.)
- 1949 Hastings, W. R. C., 27 Brooklands Road, Withycombe Raleigh, Exmouth, Devon. (Orn.)
- 1945 Hood, Mrs. P., Amerden Priory, Taplow, Bucks.
- 1948 Jermyn, S. T., 98 Western Road, Leigh-on-Sea, Essex. (Bot.)
- 1949 Jewell, A. L., "Chota Ghar", Highbury Grove, Haslemere, Surrey. (Ecol., Micr.)
- 1951 Jowett, D. W., 36 Wood Road North, Old Trafford, Manchester, 16. (Bot., Ecol.)
- 1950 Kemp, E. T. W., 23 Redstone Manor, Redhill, Surrey. (Orn.)
- 1948 Kidd, E., "Ganda", 10 Gander Hill, Lindfield, Sussex. (Orn.)
- 1948 Knight, G. R., c/o Hardie, 7 Wellington Street, Edinburgh, 7. (Pl. G.)
- 1946 Lee, H. Boswell, St. Macra, Highland Road, Amersham, Bucks. (R.)
- 1941 Lisney, A. A., M.A., M.D., F.R.E.S., "Dune Gate", Clarence Road, Dorchester, Dorset. (Lep.)
- 1946 Mackie, J. D. H., 13 Southfields, Rochester, Kent. (Orn.)
- 1932 Mason, C. T., "Lavender House", Windsor Lane, Burnham, Bucks. (Arch., Ent.)
- 1952 Maundrell, Miss B. P., Homeleigh, Chapel Lane, Great Wakering, Southend-on-Sea, Essex. (Orn.)
- 1945 Maxwell, J. E. H., 78b Clare Road, Maidenhead. (Orn.)
- 1947 Melville, K. J., 3 Ivymount Road, Newcastle-on-Tyne, 6. (Arch., Orn.)
- 1947 Mitchell, K. D. G., 11 Beeston Grove, Grassendale, Liverpool, 19. (Orn.)
- 1950 Newey, P.M., 97 Hamilton Road, Reading, Berks. (Bot.)
- 1934 Norris, C. A., M.B.O.U., Sycamore Cottage, Clent, Worcs. (Ecol., Orn.)
- 1948 Ounsted, J., M.A., Mark Ash, 116 Shinfield Road, Reading, Berks. (Bot., esp. vascular flora, Bryol., Mycol., Orn.)
- 1952 Partridge, Miss M. R., Beaumont, Hervines Road, Amersham, Bucks. (Orn.)
- 1937 Pearce, E. W., Robin's Nest, Adelaide Terrace, Blackburn, Lancs. (Orn.)
- 1935 Pettit, H. A., Spring Valley Mill, Ardleigh, Essex. (Ent., Orn.)
- 1952 Pilcher, 2/Lt. E. J., R.A.S.C., Officers' Mess, 114 Coy., R.A.S.C. (G.T.) (H.Y.), B.A.O.R. 5. (Ent., Orn.)
- 1949 Platt, Miss A. H., 50 Park Avenue, Eastbourne, Sussex. (Orn.)
- 1946 Pomeroy, Miss F. A., B.Sc., 110 Pembury Road, Tonbridge, Kent. (Arch., Bot.)
- 1949 Price, Miss K. E., 49 The Avenue, Sunbury on Thames, Middx. (Orn.)
- 1946 Rabbets, A. J., "Ashford", Luciefelde Road, Shrewsbury, Salop. (Orn.)
- 1934 Ratcliff, P. W., "Redlands", Middle Street, Brockham, Surrey. (Bot., Ecol., Orn.)

- 1941 Robbins, Rev. R. A., Avebury Vicarage, Marlborough, Wilts. (Arch., Bot.)
 1951 Roberts, Miss M. W. E., address not known. (Bot., Ecol.)
 1946 Rose, F., B.Sc., A.L.S., The Forge House, East Malling, Kent. (Bot.)
 1952 Ross, G. S., Little Blackhall, Sevenscaks, Kent. (Orn.)
 1952 Rye, D. R., Central Y.M.C.A., Gt. Russell Street, W.C.1. (Orn.)
 1925 Saul, H. J. B., 12 Sandringham Court, Ipswich Road, Norwich.
 1951 Scott, T. B., "Garswood", Reynolds Road, Beaconsfield, Bucks. (Orn.)
 1951 Sharples, R. O., "Hey Tor", 80 Beaumont Avenue, St. Albans, Herts. (Bot.)
 1940 Smeed, J. A., c/o 36 Clarendon Road, Watford, Herts. (Orn.)
 1952 Smith, Miss G. M., 28 Cross Lane West, Gravesend, Kent. (Bot., Ecol., Orn.)
 1943 Taylor, J. S., M.A., D.I.C., F.R.E.S., P.O. Box 23, Fort Beaufort, C.P., South Africa. (Ent., Orn.)
 1952 Thomas, Mrs. P. I., 3 Brook House, London Road, Sunningdale, Berks. (Bot., Ecol., Ent., Orn., R.)
 1940 Tucker, A. V., c/o Mr Pearson, 12 Ninth Avenue, Coorparoo, Brisbane, Queensland. (Orn.)
 1935 Tucker, D. G., Ph.D., D.Sc., "Vartrees", Moreton Crossways, near Dorchester, Dorset. (Ecol., Orn.)
 1942 Turner, Mrs. L., 23 Thynne Road, Billericay, Essex. (Orn.)
 1953 Underhill, B. D., 13 Lingfield Road, Edenbridge, Kent. (Wildfowl)
 1935 Van Oostveen, Miss M. S., Hill Cottage, Westleton, Saxmundham, Suffolk. (Ecol., Ent., Orn.)
 1929 Venour, Miss D., Offley Place, Great Offley, Hitchin, Herts. (Ecol., Orn.)
 1943 Ward, Miss M., B.Sc., 38 Hampton Hill Road, Tawa Flat, Wellington, New Zealand.
 1949 Waylen, Miss J., Nursteed House, Devizes, Wilts.
 1945 Whellan, J. A., Entomology Branch, Department of Agriculture, P.O. Box 25, Causeway, Salisbury, Southern Rhodesia. (Bot., Orth.)
 1950 Whybrow, C., M.A., LL.B., F.R.G.S., Prospect House, Bratton Fleming, Barnstaple, Devon. (Orn.)
 1948 Wise, A. J., The Maples, Daryngton Drive, Merrow, Guildford, Surrey. (Orn., Zoo.)
 1949 Witcomb, Miss G., Dunhevid, Grosvenor Gardens, Aldwick, Bognor Regis, Sussex. (Ent., Orn.)
 1949 Yeo, P. F., Department of Botany, University College, Leicester, and at 43 Park Road, Hampton Hill, Middx. (Bot., Ent., Orn.)
 1952 Younghusband, R. H., No. 2 C.A.A.C.U., Little Snoring Aerodrome, near Fakenham, Norfolk. (Bot., Geol., Orn.)

School Associates:

- 1953 Armelin, M., 72 Cleveland Road, Ealing, W.13. (Ent., Orn.)
 1952 Austin, B. P., 33 Natal Road, Streatham, S.W.16. (Orn.)
 H 1952 Bamford, Miss J., 51 Park Close, Hounslow, Middx. (Orn., R.)
 1950 Benbow, Miss R. M., 61 Teevan Road, Addiscombe, Croydon, Surrey. (Orn.)
 1950 Brown, J. W., 62 Fairway, Carshalton Beeches, Surrey. (Orn.)
 H 1952 Browning, P. G., 11 Manor Road, Twickenham, Middx. (Geol., Orn.)
 1951 Coats, G. C., 5 St. Olaves Walk, Norbury, S.W.16. (Orn.)
 1953 Coles, R., 145 Shenley Lane, London Colney, Herts. (Orn.)
 1953 Coles, Miss S., 145 Shenley Lane, London Colney, Herts. (Orn.)
 1952 Conway, G. R., 19 Upper Park Road, Kingston-on-Thames, Surrey. (Ent.)
 H 1952 Cooper, M. E., 41 Leyborne Avenue, Ealing, W.13. (Orn.)
 1953 Davidson, J. F., 4 Vallance Road, Wood Green, N.22. (Geol., Orn.)
 1951 Dick, M. W., 5 Fairway, West Wimbledon, S.W.20. (Bot., R.)
 1953 Edwards, D. H., 146 Chadacre Road, Stoneleigh Park, Epsom, Surrey. (Orn.)
 1952 Garr, J. J., 126 Longhill Road, Catford, S.E.6.
 1952 Heissig, H. N., 46 Colin Crescent, Hendon, N.W.9. (Orn.)
 H 1952 Hill, R. R. H., Moor Lodge, Moor Lane, Staines, Middx. (Ent.)

- 1950 Holcombe, A. J., "Sandown", The Woodfields, Sanderstead, Surrey. (Orn.)
- 1952 Hooper, M.D., 7 Essex Road, Chingford, E.4. (Bot.)
- 1951 Jeffs, J. A., 19 Marshall Avenue, Bognor Regis, Sussex.
- 1952 Knill, J. L., 8 Croham Valley Road, South Croydon, Surrey. (Geol.)
- 1950 Laird, J. G., 24 Foxley Hill Road, Purley, Surrey. (Orn., Pl. G.)
- 1953 Legg, O. C., 20 Dacres Road, Forest Hill, S.E.23. (Orn.)
- 1951 Lord, J. C., 25 Weighton Road, Harrow Weald, Middx. (Orn.)
- 1952 Morgan, M. S., 7 Wanstead Road, Bromley, Kent. (Orn.)
- H 1952 Mugford, D. K., 43 Dene Avenue, Hounslow West, Middx. (Orn.)
- H 1952 Philipson, Miss B. M., 2 Parkland Grove, Ashford, Middx. (Geol.)
- 1951 Philp, A., 18 Khyber Road, Battersea, S.W.11. (Orn.)
- 1949 Pomeroy, D. E., 11 Monks Orchard Road, Beckenham, Kent. (Orn.)
- H 1952 Preston, D. A., 206 Staines Road, Laleham, Middx. (Orn.)
- 1951 Rothschild, Miss B., 20 Redford Avenue, Wallington, Surrey. (Orn.)
- 1952 Rothschild, G., 20 Redford Avenue, Wallington, Surrey. (Ent., Geol.)
- 1953 Salter, D. N., 33 Thornton Road, Wimbledon, S.W.19.
- 1953 Scott, R. E., 48 Gassiot Way, Sutton, Surrey. (Orn.)
- 1953 Shelton, B. F., 63 Thirleby Road, Burnt Oak, Edgware, Middx. (Orn.)
- H 1951 Small, Miss J., 13 Woodfield Crescent, Ealing, W.5. (Bot., Ecol., Ent., Orn.)
- 1950 Stevens, H. R., Mills Farm, Redisham, Beccles, Suffolk. (Lep.)
- 1952 Tindale, Miss A. I., "Keverne", Duppas Hill Road, Croydon, Surrey. (Bot., Mam., Orn.)
- 1949 Tringham, R. W., 160 Elmstead Avenue, Wembley Park, Middx. (Orn.)
- 1952 Walthew, Miss S., Copinsay, East Common, Harpenden, Herts. (Orn.)
- 1950 Williams, R. P. A. F., 43 Lansdowne Crescent, W.11. (Orn.)
- 1952 Winterbottom, R. H., 23 Warminster Road, South Norwood, S.E.25. (Orn.)
- 1953 Woodley, J. D., 11 Kingsway, Ewell, Surrey. (Arch., Ent., Geol., Orn.)

Branch Associates:

- 1951 Argent, R. N., 32 Redstone Park, Redhill, Surrey.
- 1945 Baker, C. E., 25 Sparelease Hill, Loughton, Essex. (Orn.)
- 1925 Boardman, S., 109 Monkham's Avenue, Woodford Green, Essex. (Mycol., Orn.)
- 1948 Burling, Mrs. M. T., Holy Trinity Vicarage, South Woodford, E.18. (Orn.)
- 1938 Chingford Branch County Library (E. Leyland, Librarian), Hall Lane, E.4.
- 1949 Doughty, W. C., 110 Priory Avenue, Chingford, E.4. (Orn.)
- 1947 Forster, H. W., 76 Station Road, Chingford, E.4. (Col.)
- 1920 Hart, Miss H., 7 Park Hill Road, E.4.
- 1953 King, Miss M., 8 Wittenham Way, Chingford, E.4. (Bot.)
- 1943 Lusty, E. J., c/o 83 Snakes Lane, Woodford Green, Essex. (Orn.)
- 1923 Mann, E., 10 Frankland Road, E.4. (Ecol., Orn., P.L.)
- 1911 Mathieson, Miss M. L., 7 Crescent Road, E.4. (Meteorology)
- 1934 Nicholson, E. T., 21 Holly Drive, E.4. (Ecol., Orn.)
- 1945 Purdom, Mrs. I., 14 Larkshall Crescent, Chingford, E.4.
- 1944 Round, Mrs. E. A., 26 Frederica Road, Chingford, E.4. (Bot.)
- 1942 Rumsey, P. F. C., Park Farm Nursery, Sewardstone Road, E.4. (Orn.)
- 1942 Tucker, Mrs. F., 31 Frederica Road, E.4.
- 1942 Tucker, J. F., B.Sc., 31 Frederica Road, E.4. (Bot.)
- 1944 Watson, Miss L. D., 9 Richmond Avenue, Higham's Park, E.4.
- 1942 Wheeler, A. C., 17 Nevin Drive, E.4.
- 1944 Wiles, H., Mapledene, Alderton Hill, Loughton, Essex.
- 1950 Wright, R. H., 232 Croxted Road, S.E.24. (Orn.)

Family Members:

- H 1946 Ainsley, Mrs. B., 16 Belmont Road, Twickenham, Middx. (Bot., Ecol., Geol.)
- 1949 Ashley, Mrs. J. L., 32 Warminster Road, South Norwood, S.E.25. (Orn.)
- 1939 Blake, E. A., 16 Lindsay Road, Worcester Park, Surrey. (Orn.)

- 1910 Braithwaite, Miss N. A., 18 Warren Road, E.4.
 1945 Chalke, Mrs. K. I. M., 20 South Drive, Cheam, Surrey. (Orn.)
 1929 Cocksedge, Mrs. W. C., 6 Aldersmead Road, Beckenham, Kent. (Arch., Bot., Ecol., Geol.)
 1932 Collenette, Mrs. C. L., Abinger Hall, near Dorking, Surrey. (Orn.)
 H 1953 Dillingham, Miss H. F., 12 Ivanhoe Road, Hounslow, Middx. (Bot., Orn.)
 1939 Faulkner, Miss A. M. G., 127 Lower Richmond Road, Mortlake, S.W.14 (Arch., Orn., R.)
 H 1953 Germany, Miss M. E., 49 Elmer Gardens, Isleworth, Middx.
 1951 Goodfellow, Mrs. Y., 93 Chippenham Road, W.9. (Ecol., Geol.)
 1947 Greenfield, Mrs. H. F., 41 Britains Lane, Sevenoaks, Kent. (Orn.)
 1927 Hardiman, Miss A., Hyron's Cottage, Woodside Road, Amersham, Bucks. (R.)
 1948 Homes, Mrs. D. E., 62d Albemarle Road, Beckenham, Kent. (Orn.)
 1953 Horton, Mrs. A. T., 92 Felhampton Road, New Eltham, S.E.9. (Bot., Orn.)
 1949 Jeffreys, Mrs. A., 13 Cheyne Gardens, S.W.3. (Orn.)
 1948 Lockett, Mrs. M. E., 69 Norfolk Avenue, Sanderstead, Surrey. (Arch., Bot.)
 1938 MacAlister, D. A., 10 St. Albans Grove, Kensington, W.8. (Orn.)
 1951 McLay, Mrs. I., 33 Village Way, Pinner, Middx. (Orn.)
 1943 McNicol, Mrs. J. C., 38 King's Road, Edmonton, N.18. (Bot., Orn.)
 1952 May, Mrs. W. F., 8 Silverton Road, Hammersmith, W.6. (Orn.)
 1947 Melliush, Mrs. M. L., 56 Sunnyfield, Mill Hill, N.W.7. (Orn.)
 1948 Moorman, Mrs. R. M., 294 Queensbridge Road, Dalston, E.8. (Bot., Ecol., Ent., Orn., R.)
 1946 Park, Mrs. J. M. M., Flat K, Belvedere Court, Upper Norwood, S.E.19. (Orn.)
 1950 Rule, Mrs. M. H., 203 High Road, Tottenham, N.15. (Arch., Geol.)
 1946 Ryall, Mrs. R. H. M., 24 Stilecroft Gardens, Wembley, Middx. (Orn.)
 1950 Sabin, Miss E. F., 27 Langbourne Avenue, N.6. (Orn.)
 1952 Seeds, Lady, 99 North Gate, N.W.8.
 1952 Slack, Mrs. W., 31 Manor Road North, Esher, Surrey.
 H 1949 Small, Mrs. L. M. P., 13 Woodfield Crescent, W.5. (Bot., Ecol., Ent., Orn.)
 1950 Syms, Miss D., 48 Palewell Park, East Sheen, S.W.14. (Orn.)
 1947 Timson, Mrs. M. H., 85 Dollis Hill Avenue, Cricklewood, N.W.2. (Geol.)
 1952 Warburg, M. W., 1 Woodside, Erskine Hill, N.W.11. (Herpetology, Orn.)
 1948 Westcott, Mrs. Joan, 44 Rosemont Road, Richmond, Surrey. (Orn.)
 1952 Wilkinson, Mrs. S. M., 26 Golders Rise, Hendon, N.W.4.

The following abbreviations are used in the above list of members:—Amph., Amphibia; Api., Apiculture; Arch., Archaeology; Biol., Biology; Bot., Botany; Bryol., Bryology; Chem., Chemistry; Col., Coleoptera; Conch., Conchology; Dipt., Diptera; Ecol., Ecology; Ent., Entomology; Geol., Geology; Hym., Hymenoptera; Ich., Ichthyology; Lep., Lepidoptera; Mam., Mammalia; Micr., Microscopy; Mycol., Mycology; Orn., Ornithology; Orth., Orthoptera; Pl. G., Plant Galls; P.L., Pond Life; R., Ramblers' Section; Rep., Reptilia; Zoo., Zoology

CYDONIA L.

C. OBLONGA Mill., *C. VULGARIS* Pers. *Quince*. Alien. Central Asia. Planted in meadows and plantations. Rare. V.-c. 21. Two trees in a wet meadow near Moor Lock, Harefield, 1914-24; *J.E.C.* Hanger Hill, Ealing, 1952; *T.G.C.*

CRATAEGUS L.

C. MONOGYNA Jacq. *Common Hawthorn*. Hedges and wood borders. Common throughout the area, though often planted. The following varieties have been reported but many of them are probably not worth keeping up. var. *FISSA* (Poiret) Druce. V.-c. 21. Ruislip Common, 1946, *D.H.K.*; *Hb.K.* Finchley Common, 1948; *D.H.K.* var. *INCISIFOLIA* Druce. V.-c. 16. Dartford Heath, *St.J.M.*; *B.E.C. 1925 Rep.*, 873 (1926). var. *CUNEATA* Druce. V.-c. 21. Uxbridge, 1947; *D.H.K.* var. *PTERIDIFOLIA* (Loud.) Druce. V.-c. 17. One small tree on the Thames riverside between Richmond and Kew, 1942, *S.B.*; *B.E.C. 1943-44 Rep.*, 858 (1946). var. *MICROPHYLLA* Druce. V.-c. 16. Dartford Heath, *St.J.M.*; *B.E.C. 1925 Rep.*, 873 (1926). var. *SPLENDENS* (Druce) Druce. V.-c. 17. Mitcham Common, 1929, *J.E.L.*; *Hb.L.* V.-c. 21. Near Ruislip Common, *S.B.*; *B.E.C. 1943-44 Rep.*, 857 (1946); 1946, *S.B. & D.H.K.*; *Hb.K.* var. *URCEOLATA* Hobkirk. V.-c. 21. Near Ruislip Common, *S.B.*; *B.E.C. 1943-44 Rep.*, 859 (1946); 1946, *S.B. & D.H.K.*; *Hb.K.*

C. OXYACANTHOIDES Thuill. *Midland Hawthorn*. Woods and plantations. Locally abundant. V.-c. 16. Frequent on the clay. V.-c. 17. Locally common on heavy soil. V.-c. 18. Epping Forest; *W.W.*; 1951; *R.M.P.* Near Coopersale Hall, Epping, 1943, *J.E.L.*; *Hb.L.* V.-c. 19. Epping Plain, 1943, *J.E.L.*; *Hb.L.* Epping Lower Forest, 1951; *L.N.H.S. Excursion*. V.-c. 21. Common. V.-c. 24. Uxbridge; Denham; *D.H.K.* The var. *ERIOCALYX* (Freyn) Druce is reported from v.-c. 21. Ruislip Common, frequent, 1946, *S.B. & D.H.K.*; *Hb.K.* Plants with small fruits are reported from v.-c. 21. Near Ruislip Common; *S.B.*; 1946, *S.B. & D.H.K.*; *Hb.K.*

× *MONOGYNA*. V.-c. 17. Thames riverside between Kew and Richmond, *S.B.*; *B.E.C. 1943-44 Rep.*, 863 (1946). V.-c. 21. Near Ruislip Common, *S.B.*; *B.E.C. 1943-44 Rep.*, 863 (1946); 1946, *S.B. & D.H.K.*; *Hb.K.* Near Hounslow Heath, 1948; West Heath, Hampstead, 1949; Finchley, 1951; *D.H.K.* This hybrid is easily overlooked, and is probably much more frequent than these records indicate.

C. PALMSTRUCHII Lindm. Alien? Europe. Hedges. Very rare. V.-c. 21. Near Ruislip Common, 1944, *S.B.*; *Hb.Mus.Brit.*; 1946 and 1951, *D.H.K.*; *Hb.K.*; enclosed in the garden of a new house, 1951; *R.A.G.* For an account of this interesting plant see S. Batko, *B.E.C. 1943-44 Rep.*, 847-66 (1946).

*From this page onwards Mr. J. E. Dandy has kindly rendered great assistance with the nomenclature.

C. PUNCTATA Jacq. Alien. N. America. Planted in woods and plantations. Not common. V.-c. 21. Hampstead Heath, 1951-52; *N.H.C.** det. *A.M.*

C. CRUS-GALLI L. Alien. N. America. Planted in woods, plantations and recreation grounds. Not common. V.-c. 17. Wimbledon Common, 1943; Richmond Park, 1945; *B.W.* V.-c. 21. Uxbridge, 1912, *P.H.C.*; *Hb.L.N.H.S.*

C. ORIENTALIS M.B. Alien. Orient. Naturalised in hedges. Very rare. V.-c. 17. Hedge near Leatherhead, 1948; *J.B.E.* det. *E.B.Ba.* Bird-sown from a garden ?

PYRACANTHA M. J. Roem.

P. COCCINEA M. J. Roem., *CRATAEGUS PYRACANTHA* Med. *Fiery Thorn*. Alien. S. Europe and W. Asia. Naturalised in a chalkpit. Very rare. V.-c. 18. Chalkpit, Grays, thoroughly established from bird-sown seed from a garden, 1949, *J.E.L.*; *Hb.L.*

COTONEASTER Med.

C. SIMONSII Baker. Alien. Himalaya. Naturalised in hedges and thickets. Not common. V.-c. 17. Bushy place near foot of Colley Hill, Reigate, bird-sown from a garden, 1921; *R.W.R.* Ermine Street in two places between Ashted and Mickleham Downs, 1926; *L.J.T.* South Hawke, Woldingham, two bushes, 1931; *J.C.R.* Leatherhead, one plant in a hedge, 1940; *J.E.S.D.* Bookham Common, 1952; *P.W.E.C.†* teste *E.B.Ba.*

C. HORIZONTALIS Decne. Alien. China. Naturalised in bushy places. Very rare. V.-c. 21. Above Harefield chalkpit, naturalised from bird-sown seed, 1946-53; *D.H.K.*

AMELANCHIER Med.

A. INTERMEDIA Spach, *A. CANADENSIS* auct., *A. LAEVIS* auct. Alien. N. America. Naturalised in woods and plantations, and on commons; often planted, but also possibly bird-sown, or introduced with rubbish, from gardens. Not common. V.-c. 16. Hayes Common, 1911; *B.T.L.* Hosey Common, 1953; *L.M.P.S.* V.-c. 17. Ham Common, one tree, 1943-53; also three bushes, 1953; *B.W.* Oxshott Heath; *L.M.P.S.* det. *A.M.* & *E.B.Ba.* V.-c. 18. Cooks Folly Wood, 1899 and 1900, *R.W.R.* (as *PRUNUS PADUS*); *Hb.L.N.H.S.* det. *A.M.* & *E.B.Ba.* V.-c. 21. Wood, East Finchley, 1887 and 1900-12; North End, Hampstead, 1916; *J.E.C.*; 1949; Ken Wood, 1950; *D.H.K.* There has been much confusion over the nomenclature of this genus and we are greatly indebted to Dr. A. Melderis, Mr. E. B. Bangarter and Mrs. B. Welch for their assistance in attempting to clear up the problem. All the plants

*Coates. Miss N. H.

†Currie, P. W. E.

examined from the London Area appear to belong to one species, which does not agree with the material of *A. CANADENSIS* in the Linnean Herbarium. The name *A. INTERMEDIA* has been adopted as that most probably applicable to the plant which occurs in southern England.

SAXIFRAGACEAE

SAXIFRAGA L.

S. GRANULATA L. *Meadow Saxifrage*. Damp meadows, also in grassy places especially on sandy and gravelly soils. Locally plentiful. V.-c. 16. Greenhithe, *F.J.H.*; *Fl. Kent*, 143. Pauls Cray and Hayes Commons; Holwood Park; Biggin Hill; W. of Shoreham; *W.W.* Gravel pit near Hayes railway station, 1926, *J.E.L.*; *Hb.L.* West Wickham; *R.W.R.*; railway embankment, 1937; *J.B.M.* Shoreham, 1947; Darenth Wood, 1951; *F.R.* By river, Sutton-at-Hone; between Darenth and Hawley Court; field nearly opposite Hawley Post Office, abundant; Stone Village; Dartford; road between Dartford and Sutton-at-Hone, 1948-52; *H.M.P.* Green Street Green, near Darenth, 1951; *F.R.* V.-c. 17. Chertsey Meads, 1907, *C.S.N.*; *Hb.L.N.H.S.*; 1919, *C.L.W.*; *Hb.B.*; 1933; between Croydon and Shirley, 1923; Petersham Meadows, 1944, *J.E.L.*; *Hb.L.* Towpath between Richmond and Teddington Lock, 1924; *H.J.B.* Richmond Cemetery, 1944; Ham Meadows and around Ham House, 1945; *B.W.* Weybridge, 1940, *P.H.C.*; *Hb.L.N.H.S.* Woldingham, rare, 1919; Barrow Green, Oxted, 1921; *R.W.R.* Railway bank, Cheam; *P.H.C.* Caterham, 1938; *J.B.E.* V.-c. 18. Near Tilbury, 1899; *J.E.C.* Stifford Churchyard, 1905; *P.H.C.* V.-c. 20. Hamper Mills; *C.S.N.* Rye House, 1908; *P.H.C.*; Great Amwell, 1938, *D.McC.*; *Hb. L.N.H.S.* Hertingfordbury churchyard, 1943; *L.J.T.* V.-c. 21. Hampton Court, 1903, *C.B.G.*; *Hb.S.L.B.I.*; 1941, *E.C.W.*; *Hb.L.*; 1952; *D.H.K.* Syon House Grounds, 1946; *B.W.*, *A.B.J.*, *H.S.* & *D.H.K.*

S. TRIDACTYLITES L. *Rue-leaved Saxifrage*. Wall tops and dry sandy places. Local, and decreasing. V.-c. 16. Bexley, 1878, *F.J.H.*; *Hb.Mus.Brit.* Old wall near Catford; *J.E.C.* Eltham, 1915; *E.B.B.* West Wickham, 1926, *J.E.L.*; *Hb.L.* Holwood Park, in a ploughed field; *W.W.* Darenth, 1936; Chelsfield to Shoreham; *P.H.C.* Maplescombe, 1923; *W.W.* V.-c. 17. Merton, 1919; *L.J.T.* Norbury Park, Mickleham, 1919; *E.B.B.*; 1941; *P.H.C.*; The Priory, 1951; *J.E.S.D.* Near Banstead railway station among grass, 1943; *P.H.C.* V.-c. 18. Stifford, 1905; *P.H.C.* V.-c. 19. Roydon, 1908; *P.H.C.* Wall, Netteswell, 1952; *R.M.P.* V.-c. 20. Broxbourne, 1910; Park Street; Cheshunt; *P.H.C.* Waltham Abbey, 1909, *P.H.C.*; *Hb.L.N.H.S.* Wall near Moor Park, 1928; *B.T.W.* Hertford, 1950; *S.C.M.* V.-c. 21. Shepperton, 1905; *C.S.N.* Walls, Upper Halliford, 1949-52; *D.H.K.* West Drayton, 1926; *L.J.T.* Mill Hill, 1908, *C.S.N.*; *Hb.L.N.H.S.* Stanmore; *P.H.C.* Plentiful on the river wall near Hampton Court, 1947; *B.W.* & *D.H.K.* V.-c. 24. Denham, 1934; *P.H.C.*

S. SPATHULARIS × *UMBROSA*, *S. UMBROSA* L. var. *CRENATO-SERRATA* Bab. *London Pride*. Alien of hortical origin. Naturalised in grassy places. Not common. V.-c. 17. Limpsfield Common, rare, *R.W.R.*; *Lond. Nat.*, 19, 67 (1940).

TELLIMA R.Br.

T. GRANDIFLORA (Pursh) Lindl. Alien. N. America. V.-c. 16. Hayes Common, 1931, *P.H.C.*; *Hb.L.N.H.S.*

CHRYSOSPLENIUM L.

C. ALTERNIFOLIUM L. *Alternate-leaved Golden Saxifrage*. Stream-sides, marshes and wet places in woods. Very local. V.-c. 17. Marsh near Oxted Mill Pond, 1923; *R.W.R.*; 1937 and 1938, *P.H.C.*; *Hb.L.N.H.S.* Near Reigate Heath, c. 1930, *J.E.L.*; *Hb.L.*

C. OPPOSITIFOLIUM L. *Opposite-leaved Golden Saxifrage*. Stream-sides, marshes and wet places in woods. Locally plentiful. V.-c. 16. Near Brasted; Chislehurst; Crofton; *W.W.* Marshy copse at Twitton, Otford, 1947; *F.R.* Crockham Hill, 1952; *R.M.P.* V.-c. 17. Limpsfield, by edge of stream, 1919; *E.B.B.*; common and well distributed; near Oxted, 1921; *R.W.R.*; very local, 1938; *P.H.C.* White Hill, near Caterham, 1923. *J.E.L.*; *Hb.L.* V.-c. 18. Near Beaumont Manor, 1902, *C.S.N.*; one fair-sized clump, 1911, *P.H.C.*; *Hb.L.N.H.S.* Paine Shaw, Navestock Side, 1926; *B.T.W.* V.-c. 20. Wormley West End, 1911, *P.H.C.*; *Hb.L.N.H.S.*; 1931; *L.J.T.* Panshanger Park, 1950; *S.C.M.* V.-c. 21. Bishops Wood, Hampstead, abundant, 1902; *C.S.N.*; now lost; *D.H.K.* Brook banks, Old Park Wood, Harefield, 1946, *B.W.*; *Hb.W.*; still plentiful, 1952; *D.H.K.* Scratch Wood, Edgwarebury, 1946; *B.W.* & *D.H.K.* Osterley Park; *B.W.*; 1950; Long Wood, Wyke Green, 1950; *D.H.K.* V.-c. 24. Near Black Park, 1936, *P.H.C.*; *Hb.L.N.H.S.*

PARNASSIACEAE

PARNASSIA L.

P. PALUSTRIS L. *Grass of Parnassus*. Marshes and wet moors. Very rare, and probably extinct. V.-c. 21. Near Harefield, 1900; *H.W.P.*

HYDRANGEACEAE

PHILADELPHUS L.

P. CORONARIUS L. *Syringa*, *Mock Orange*. Alien. S.E. Europe and Caucasus. Planted in woods and plantations. Not common. V.-c. 21. Laleham Park, semi-naturalised, 1946; *D.H.K.*

GROSSULARIACEAE

RIBES L.

R. UVA-CRISPA L., *R. GROSSULARIA* L. *Gooseberry*. Woods, hedges and streamsides, no doubt bird-sown—sometimes from gardens. Not common. V.-c. 16. Eltham, 1915; near Eynsford, 1916; *E.B.B.* Abbey

Wood, 1931; Hosey Common, 1936; *P.H.C.* N.E. of Otford, 1922; *L.J.T.* Dartford Heath, one plant, 1948-51; *H.M.P.* High Elms Wood, Orpington, 1947; *J.B.M.* V.-c. 17. Near Mickleham, 1916; hedgerow, Leatherhead-Fetcham Road, 1917; *E.B.B.* Chaldon, 1936; Titsey Hill, 1937; Gatton; *P.H.C.* Oxted, lane leading to the downs, 1917; Warlingham, 1923; Limpsfield Chart; *R.W.R.* Petersham Common, 1946; *E.W.D.*; 1952; Long Plantation, Chipstead, 1950; *B.W.* Cranham, 1936; *P.H.C.* Bookham Common, 1952; *A.W.J.** V.-c. 20. Rickmansworth, 1913; *P.H.C.* Wormley West End, several young plants; *C.N.* V.-c. 21. Harmondsworth, 1911, *P.H.C.*, *Hb.L.N.H.S.* Uxbridge; *D.H.K.* Harrow Weald Common, 1945; *B.W.* V.-c. 24. Iver Heath, 1936; *P.H.C.*

R. NIGRUM L. *Black Currant.* Woods, thickets and streamsides. Not common. V.-c. 16. Westerham, 1936; *P.H.C.* High Elms Wood, Orpington, 1947; *J.B.M.* V.-c. 17. Western edge of Headley Heath, 1917; *E.B.B.* Oxted, 1921, *R.W.R.*; *Hb.L.N.H.S.* Between Chertsey and Weybridge, 1934; *P.H.C.* Titsey Hill, 1938, *P.H.C.*; *Hb.L.N.H.S.* Riverside, Kew, 1943; *B.W.* V.-c. 18. Woodredon Hill, 1900; *R.W.R.* V.-c. 19. Epping Lower Forest, 1952; *R.M.P.* V.-c. 21. Harefield, 1907; *L.J.T.*

R. SYLVESTRE Mert. & Koch, *R. RUBRUM* var. *SATIVUM* Reichb., *R. RUBRUM* auct. angl., L. p.p. *Red Currant.* In similar situations to the previous species. Not common. V.-c. 16. Crofton Court, near Orpington, 1923; *E.B.B.* Abbey Wood, 1927; *H.J.B.* Westerham; *P.H.C.* By the Darenth at Darenth, 1882, *F.J.H.*; *Hb.Mus.Brit.* High Elms Wood, Orpington, 1947; *J.B.M.* Wood W. of Sutton-at-Hone, 1951; *F.R.* V.-c. 17. Western edge of Headley Heath in two or three places; Oxted, 1917; Selsdon Woods, 1926; *E.B.B.* Barrow Green Woods, Oxted, 1921; *R.W.R.* Tothill, Headley, 1926; *L.J.T.* Titsey Hill; Limpsfield, 1937, *P.H.C.*; *Hb.L.N.H.S.* Weybridge, far from houses, 1930, *J.E.L.*; *Hb.L.* Between Chertsey and Weybridge, 1934; *P.H.C.* Riverside between Kew and Mortlake, 1944; Ham gravel pits, 1945; riverside, Richmond to Kew, 1946; *B.W.* Leatherhead Common, 1949; *P.F.Y.* Bookham Common, 1951; *E.B.Ba.* V.-c. 18. Outside Debden Park, 1924; *H.J.B.* V.-c. 19. Epping Lower Forest, 1951; *L.N.H.S. Excursion.* V.-c. 20. Cheshunt Park, 1910; *O.R.C.* Banks of River Lea near Hertford, 1950; *S.C.M.* V.-c. 21. Old Park Wood, Harefield, 1903; *C.B.G.*; 1942-52; *D.H.K.* Bank of Little Britain Lake, Cowley Peachey, 1945; Scratch Wood and Mote Mount Park, near Mill Hill, 1946; *B.W.* & *D.H.K.*

R. ALPINUM L. *Mountain Currant.* Alien. Europe, including parts of Britain. Escape from cultivation. Rare. V.-c. 17. Hedge at Barrow Green, Oxted, 1921; *R.W.R.*; 1953; *B.M.C.M.* & *B.W.*

*Jones, A. W.

GRASSULACEAE

SEDUM L.

S. TELEPHIUM L. *Orpine, Livelong.* Woods and hedgebanks. Local. V.-c. 16. Locks Bottom, 1917; *P.H.C.* Kingsdown, 1929; *J.C.R.* Chevening, 1933; *P.H.C.* Darenth Wood, 1948-52; *H.M.P.* Farningham Wood, 1950; *R.A.B.*; 1952; *H.M.P.* V.-c. 17. By Clacket Farm, near Titsey, 1914; *C.L.W.* Edge of lane near Oxted Mill, 1917; *E.B.B.* Near Weybridge, 1922; *W.W.* Barrow Green, Oxted; Reigate Heath, 1921; *R.W.R.* Near Tadworth, 1922; *L.J.T.* Between Walton-on-the-Hill and Headley, 1938 & 1950; *E.W.G.* Betchworth, 1940; *P.H.C.* V.-c. 18. Chalkpit, Purfleet, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Broxbourne, in several places; *C.N.* Finch's Avenue; lane by the Durrant's, 1903; *C.S.N.* Bricket Wood; *P.H.C.* Rickmansworth, 1912, *P.H.C.*; *Hb.L.N.H.S.* North Mimms, 1950; *S.C.M.* V.-c. 21. Near Harefield Chalkpit, 1909; *C.S.N.* Springwell Lane, Harefield, 1928; *L.N.H.S. Excursion*; 1946; *B.W.*; 1951; near Heston, 1937; railway banks, Potters Bar, 1942; *D.H.K.* V.-c. 24. Near Fulmer; *P.H.C.* Some of these records possibly refer to *S. PURPURASCENS* Koch.

S. FORSTERIANUM Sm., *S. RUPESTRE* auct. angl., L. p.p. *Rock Stonecrop.* Alien. Europe, including parts of Britain. Garden escape. Naturalised on old walls and stony waste ground. Rare. V.-c. 17. Churchyard wall, Limpsfield, 1914; *E.B.B.* V.-c. 21. Hanger Hill, Ealing; rubbish-tip, Hanwell, 1946, *D.H.K.*; *Hb.K.*

S. REFLEXUM L. Alien. Europe. Naturalised on old walls, banks, and stony places. Not common. V.-c. 16. Railway banks, Swanley Junction, common, 1916; *E.B.B.* Chelsfield, *F.J.H.*; *Fl. Kent*, 148. V.-c. 17. Weybridge Heath, 1917; *C.L.W.* Oxted; Tandridge, 1921; *R.W.R.* Oxshott Common, 1942; *P.H.C.* Chalk Lane, Ashted, 1944, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Hertford, 1948; *L.J.T.*

S. ACRE L. *Wall-pepper.* Old walls, railway-tracks, stony and dry grassy places. Common in all the v.-cc.

S. ALBUM L. *White Stonecrop.* Alien. Europe, including parts of Britain. Naturalised on old walls, and in stony places and chalkpits. Not common. V.-c. 17. Walls at Limpsfield, 1914; *E.B.B.* Wall of chalkpit, Headley Lane, 1942; *B.W.* V.-c. 18. Wall at Waltham, 1905; *R.W.R.* V.-c. 20. Roadside bank at Amwell cross-roads, 1950; *S.C.M.*; 1952; *R.M.P.* V.-c. 21. Wall near Brentford, 1871, *F.J.H.*; *Hb.Mus. Brit.* Near Wood End, Harrow, introduced with shingle-ballast, 1946; *D.H.K.*

S. DASYPHYLLUM L. *Thick-leaved Stonecrop.* Alien. Europe. Naturalised on old walls. Rare. V.-c. 21. Wall near Brentford, 1871, *F.J.H.*; *Hb.Mus. Brit.* Near Uxbridge, 1907, *C.B.G.*; *Hb.S.L.B.I.*

SEMPERVIVUM L.

S. TECTORUM L. *Houseleek*. Alien. Planted on old walls and roofs, but less frequently than formerly. Though scarcely naturalised it has been reported from all the v.-cc. except 20.

DROSERACEAE

DROSERA L.

[*D. ANGLICA* L. *Great Sundew*. Alien. Europe, including parts of Britain. V.-c. 19. Deliberately planted in Wake Arms Bog, Epping Forest, 1952; teste *F.R.*]

D. INTERMEDIA Hayne, *D. LONGIFOLIA* L. p.p. *Long-leaved Sundew*. Bogs and wet heathy places. Very rare. V.-c. 18. Plain opposite Keeper's Cottage, Wake Arms, Epping Forest, 1926; *B.T.W.*: one plant only seen, 1927; *L.N.H.S. Excursion*. The plant grows plentifully in several places near Wisley, Surrey, and in smaller quantity near Burnham, Bucks., both just outside the Society's area.

D. ROTUNDIFOLIA L. *Round-leaved Sundew*. Bogs and wet heathy places amongst Sphagnum. Very local. V.-c. 16. Keston Bog, 1917; *P.H.C.*: 1922, *J.E.L.*; *Hb.L.*; 1936, *P.H.C.*; *Hb.L.N.H.S.*; 1949-52, about sixty plants; *F.R.* V.-c. 17. Wimbledon Common; *W.W.*; 1925 and 1942, *J.E.L.*; *Hb.L.*; 1950, eight plants, *R.A.B.*; *S.E.Nat.*, 55, xxi (1951). Esher Common, 1932; *P.H.C.*; by Black Pond, about one hundred plants, 1950; *F.R.* Reigate, 1941; *P.H.C.* Oxshott Heath, 1948; *J.B.E.*: about fifty plants, 1951; *F.R.* V.-c. 18. Open heather near Wake Arms, about one thousand plants, 1909; *C.L.C.*; apparently gone, 1952; High Beech side of Woodredon Road, one plant, 1926; *B.T.W.* V.-c. 19. Bog near Wake Arms, Epping Forest, *C.N.*: *Hb.L.N.H.S.*; about fifty plants, 1951; *F.R.* Pond side, Copped Hall Lodge Road, Epping Forest, about five hundred to one thousand plants, 1926; about one hundred and fifty plants, 1952; *B.T.W.* V.-c. 21. Harrow Weald Common, a few plants, 1936. gone by 1940; *D.H.K.*

HIPPURIDACEAE

HIPPURIS L.

H. VULGARIS L. *Mare's-tail*. Lakes, ponds, streams and ditches. Very local. V.-c. 16. Stone Marshes, 1948; *H.M.P.* V.-c. 17. Fetcham Millpond, 1916, *E.B.B.*; *Hb.B.*; 1928, *J.E.L.*; *Hb.L.*; 1940; *P.H.C.*: 1946; *J.E.L.* & *D.H.K.*; 1952; *J.E.S.D.* New pond, Merstham, 1947, not seen since; *J.D.L.* V.-c. 20. Rickmansworth, 1899, *C.S.N.*; *Hb.L.N.H.S.* River Lea near Broxbourne; *R.W.R.* Cheshunt, 1907; *J.E.C.* V.-c. 21. Above Chertsey Bridge, 1907, *C.B.G.*; *Hb.S.L.B.I.* West Drayton, 1910; St. Margaret's, 1912, *P.H.C.*; *Hb.L.N.H.S.* River Lea, Enfield Lock; *L.B.H.* Yiewsley, 1910-12; near Harefield, 1908; *J.E.C.*

HALORAGACEAE

MYRIOPHYLLUM L.

M. SPICATUM L. *Spiked Water-milfoil*. Lakes, ponds, ditches and streams. Locally abundant. V.-c. 17. Mitcham Common, 1925, *J.E.L.*; *Hb.L.* Egham, 1920; Headley Heath, 1926; *L.J.T.* Stew Ponds, Epsom Common, towards Chessington, 1936, *P.H.C.*, *Hb.L.N.H.S.* Leatherhead Millpond, 1940; *P.H.C.* V.-c. 18. Epping Forest; *L.B.H.* Purfleet, 1936, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Ruislip Reservoir; Hampton Court and Bushy Parks; Shortwood Common, Staines; Yeoveney; Thames between Walton Bridge and Shepperton; pool near Walton Bridge; Vale of Health Pond, East Heath, Hampstead, 1944-52; *D.H.K.* Gravel pit, East Bedfont, 1945, *B.W.*; *Hb.W.* det *A.M.* Ruislip Common, 1949; *F.E.W.* & *D.H.K.* V.-c. 24. Black Park, 1950; *D.H.K.*

M. ALTERNIFLORUM DC. *Alternate-flowered Water-milfoil*. Lakes, ponds, streams, and ditches. Very local, or overlooked. V.-c. 21. Colne at Staines Moor, 1950; *D.H.K.*

M. VERTICILLATUM L. *Whorled Water-milfoil*. Ponds, lakes and slow streams. Very local. V.-c. 18. Chigwell, 1893; *J.E.C.* V.-c. 21. Near Harefield, 1907, *C.B.G.*; *Hb.S.L.B.I.* Stanwell Moor, 1913; *J.E.C.* St Margaret's, 1912, *P.H.C.*; *Hb.L.N.H.S.* Canal backwater near Southall, 1947, *D.H.K.*; *Hb.K.* V.-c. 24. Near Uxbridge, 1911; *J.E.C.* Pond near Denham, 1918; *L.B.H.* The var. *PECTINATUM* (DC.) Druce is reported from v.-c. 21. Canal near West Drayton, 1871, *F.J.H.*; *Hb.Mus.Brit.*

CALLITRICHACEAE

*CALLITRICHE L.

C. STAGNALIS Scop. *Water Starwort*. Ponds, ditches and streams. Common and widely distributed throughout the area.

C. OBTUSANGULA Hegelm. Pools, ditches, lakes and streams. Very local, or overlooked as *C. STAGNALIS* from which it is scarcely distinguishable when sterile, though very different in fruit. V.-c. 17. Limpsfield, common in brook, 1921; *R.W.R.* Near Epsom Downs, 1926, *J.E.L.*; *Hb.L.* teste *A. Bennett*.

C. PALUSTRIS L. em. Rend. & Britt., C. VERNA L. em. Lonnr., C. VERNALIS Koch. Pools, ditches and streams. Very local, or overlooked as *C. STAGNALIS*. V.-c. 17. West End Common, Esher, *C.E.B.*; *Fl. Surrey*, 322.

C. INTERMEDIA Hoffm., C. HAMULATA Koch, C. AUTUMNALIS auct., non L. Lakes, pools, ditches and slow streams. Local. V.-c. 17. Near Weybridge, 1922; *W.W.* Mitcham Common, 1931, *J.E.L.*; *Hb.L.*

*This difficult and polymorphic genus has been much misunderstood and some of the records may need revision.

Tandridge; *P.H.C.* det. *W.R.S.* V.-c. 21. Staines, 1904; *C.B.G.*; Shortwood Common and Staines Moor, 1947; Longford River, Stanwell, 1950; *D.H.K.*

C. TRUNCATA Guss. var. *occidentalis* (Rouy) Druce. Streams. Very local. V.-c. 16. Stream near Chipstead and Chipstead Mill, 1933, *J.E.L.*; *B.E.C.* 1933 *Rep.*, 762 (1934); 1943; *J.E.L.*

LYTHRACEAE

PEPLIS L.

P. PORTULA L. *Water Purslane*. Pond verges and muddy places, absent from the chalk. Local. V.-c. 16. Chislehurst and Hayes Commons; *W.W.* Dartford Heath, 1947; *J.B.M.*; 1948-52; flooded gravel working, Farningham Wood, 1952; *H.M.P.* V.-c. 17. Reigate Heath, 1929; Mitcham Common, 1929, *J.E.L.*; *Hb.L.*; 1949; *J.B.E.* Walton Heath, 1917; *E.B.B.*; 1923; West End Common, Esher, 1923, *J.E.L.*; *Hb.L.*; 1925; *H.J.B.* Wimbledon Common; *W.W.*; Farm Bog, 1939; *C.A.* Limpsfield, local, 1922; *R.W.R.* Pond verges, Richmond Park; *C.A.*; 1943; *B.W.* Bookham Common, 1952; *E.B.Ba.* V.-c. 18. Epping Forest; *L.B.H.*; 1904, *C.S.N.*; *Hb.L.N.H.S.*; 1951; *L.N.H.S. Excursion*. High Wood, by Ongar Park Wood, 1952; *B.T.W.* & *J.E.L.* V.-c. 19. North Weald, 1937; *P.H.C.* Galleyhill Wood, 1952; *R.M.P.* V.-c. 20. Totteridge, 1899; *J.E.C.*; 1952; *D.H.K.* Bricket Wood, 1938; *R.W.R.* Berry Grove; *C.S.N.* Wormley; *L.B.H.* Napsbury, 1910, *P.H.C.*; *Hb.L.N.H.S.* Aldenham Reservoir, 1929, *J.E.L.*; *Hb.L.*; 1952; *D.H.K.* Hoddesdon, 1949; *R.M.P.* Hertford Heath, 1950; *S.C.M.* V.-c. 21. Mill Hill, 1905, *C.S.N.*; 1910, *P.H.C.*; *Hb.L.N.H.S.* Hadley Wood, 1929, *J.E.L.*; *Hb.L.* Hadley Common, 1946; Harrow Weald and Ruislip Commons; Grimsdyke; Hounslow Heath, 1944-52; *D.H.K.* Bayhurst Wood, Ruislip; *F.E.W.* V.-c. 24. Iver Heath, 1913, *P.H.C.*; *Hb.L.N.H.S.*

LYTHRUM L.

L. SALICARIA L. *Purple Loosestrife*. Pond verges and stream and river sides. Common in all the v.-cc.

ONAGRACEAE

CHAMAENERION Adans.

C. ANGUSTIFOLIUM (L.) Scop., *EPILOBIUM ANGUSTIFOLIUM* L. *Rosebay Willow-herb*, *French Willow-herb*, *Fireweed*. Wood verges and clearings, heaths, commons, railway banks, disturbed waste ground and bombed sites. During the period covered by the records this species has shown a most rapid increase. By 1939 it was abundant in the country areas, and since then it has become also one of the dominant plants on bombed sites and in waste places. Now in the greatest abundance throughout the area.

EPILOBIUM L.

Mr. G. M. Ash has kindly named many gatherings of this difficult genus.

E. HIRSUTUM L. *Great Hairy Willow-herb, Codlins and Cream.* Stream-banks, marshes and damp waste ground. Common throughout the area. Plants with white flowers are reported from v.-c. 17. Top of Streatham Common, 1943; *J.E.L.* V.-c. 18. Buckhurst Hill, 1938, *A.B.H.*; *Hb.L.N.H.S.* V.-c. 21. Highgate Woods, 1901; N. Finchley, 1917; Finchley, 1928; *J.E.C.*; 1949; *D.H.K.* Enfield, 1926; *L.J.T.* Railway bank, Ealing, 1934-52; *D.H.K.* Gravel pit near Hounslow Heath, 1947; *H.B.* & *D.H.K.*

× *MONTANUM*. V.-c. 17. Mickleham Downs, 1942; *B.W.* det. *N.Y.S.*; *N.Y.S.*; *Hb.Mus.Brit.*

× *PARVIFLORUM*. V.-c. 20. Pond near Northaw Church, 1933, *J.E.L.*; *Hb.L.* teste *G.M.A.*

E. PARVIFLORUM Schreb. *Small-flowered Willow-herb.* Stream-banks and marshes. Common throughout the area.

E. ADNATUM Griseb., *E. TETRAGONUM* auct., L. p.p. *Square-stemmed Willow-herb.* Woodland clearings, hedgebanks, streamsides, ditches pond verges, cultivated and waste ground. Rather common. V.-c. 16. Bickley; *W.W.* Green Street Green, near Farnborough, 1930 and 1937, *J.E.L.*; *Hb.L.* teste *G.M.A.* Hayes, 1938; *D.Mc.C.* V.-c. 17. Abrook; *W.W.* Wood by Banks Common, 1923; *E.B.B.* Cultivated ground, Limsfield, 1924; *R.W.R.* Mitcham Common, 1924; *J.E.L.* teste *G.M.A.* Near Teddington Lock; Weybridge, 1930; *J.E.L.* Allotments near Kingston, 1933, *G.M.A.*; *Hb.L.* Streatham Common, 1935; Oxted, 1936; Tadworth, 1937; *P.H.C.* Wimbledon Common, 1933; *C.P.C.*; 1935; *C.A.* V.-c. 18. Hale End; *R.W.R.* Purfleet, 1935; *P.H.C.* Loughton, 1951; *R.M.P.* det. *G.M.A.* V.-c. 20. Sandpit near St. Albans, 1952; *T.G.C.* V.-c. 21. Eastcote; *C.S.N.* Northwood; *R.S.R.F.* Between Southall and West Drayton, 1931, *A.H.G.A.*; *Hb.Mus.Brit.* det. *G.M.A.* Grounds of Ashford County Hospital; *J.K.H.* East Bedfont; Ruislip; West Drayton; Ealing; Hanwell; Edgware; Scratch Wood; Elstree, 1944-52; *D.H.K.*

× *HIRSUTUM*. V.-c. 17. Fetcham Millpond, 1941, *J.E.L.*; *Hb.L.* teste *G.M.A.*

× *ROSEUM*. V.-c. 17. Neglected garden, Honor Oak Road, Forest Hill, *H.K.A.-S.* det. *G.M.A.*; *B.S.B.I.* 1951 *Year Book*, 78.

E. LAMYI F. Schultz. Damp woods, roadsides, cultivated and waste ground. Very local, or overlooked. V.-c. 16. Swanscombe Wood, 1949; *F.R.* det. *G.M.A.* V.-c. 17. Allotments, Kingston, 1933, *G.M.A.*; *Hb.L.* Richmond, 1948, *B.W.*; *Hb.W.* det. *G.M.A.* V.-c. 21. Gravel

pit, East Bedfont, 1946, *J.P.M.B. & D.H.K.*; *Hb.K.* det. *J.P.M.B.*
Rubbish tip, Hanwell, 1948, *D.H.K.*; *Hb.K.* det. *G.M.A.*

E. obscurum Schreb. Marshes, streamsides, ditch banks, moist woods, cultivated and waste ground. Common. Recorded from all the v.-cc. except 19.

E. adenocaulon Hausskn. Alien. N. America. Completely naturalised in woods, on heaths, commons, waste ground and bombed sites and by streamsides. In many districts, including the City bombed sites, it is now the most common species. Frequent in all the v.-cc. except 19, where though unrecorded it is almost certain to occur. The following is a selection of the earliest records for the area:—V.-c. 16. Chevening Park, 1943, *J.E.L.*; *Hb.L.* det. *G.M.A.* Sutton-at-Hone, 1948; *H.M.P.* Swanscombe Wood, 1949; *F.R.* det. *G.M.A.* V.-c. 17. Epsom Sewage Farm, *A.E.E.* det. *G.M.A.*; *B.E.C. 1938 Rep.*, 41 (1939). Dried-up end of Fetcham Millpond, 1944, *J.E.L.*; *Hb.L.* det. *G.M.A.* V.-c. 18. Railway yard, Snaresbrook, 1951; *D.H.K.* Loughton railway station, 1952; *B.T.W. & J.E.L.* V.-c. 20. Near Springwell; Rickmansworth, 1949; *D.H.K.* V.-c. 21. Bombed site, Suffolk Lane, E.C.4, 1946; *J.E.L.* det. *G.M.A.* St. James's Park, 1946; *N.Y.S.* Kilburn, 1946; *R.A.G.* Gravel pit, East Bedfont, 1946; *J.P.M.B.*, *J.E.L.*, *J.G.D.*, *J.E.W.* & *D.H.K.* Kensington Gardens; Chelsea, 1947; *D.H.K.* Staines railway station, 1947, *B.W.*; *Hb.W.* det. *G.M.A.* V.-c. 24. Denham, 1947; *D.H.K.* det. *G.M.A.* For an account of this interesting and variable species see G. M. Ash & N. Y. Sandwith, *J. Bot.*, 73, 177-184 (1935).

×*parviflorum*. V.-c. 21. Finchley Common, 1948, *B.W.*; *Hb.W.* det. *G.M.A.*

×*roseum*. V.-c. 17. Neglected garden, Honor Oak Road, Forest Hill, *H.K.A.-S.* det. *G.M.A.*; *B.S.B.I. 1951 Year Book*, 78.

E. roseum Schreb. Damp places, woods, copses, railway banks, cultivated and waste ground. Rather local, or overlooked. V.-c. 16. Chislehurst; near Bromley; *W.W.* Swanscombe Wood, 1938, *P.H.C.*; *Hb.L.N.H.S.* Elmstead Woods, 1952; *L.M.P.S.* V.-c. 17. Epsom Sewage Farm, 1938; Weston Green, Thames Ditton, 1942, *A.E.E.*; *Hb.E.C.M.* both det. *G.M.A.* Banks of River Mole, Burford Bridge, 1949; gravel pit near Mitcham Junction railway station, 1933, *J.E.L.*; *Hb.L.* Neglected garden, Honor Oak Road, Forest Hill, 1951, *H.K.A.-S.* det. *G.M.A.*; *B.S.B.I. 1951 Year Book*, 78. Wimbledon Common, 1945; by Adam's Pond, Richmond Park; *B.W.* V.-c. 18. Purfleet, 1935; *P.H.C.* V.-c. 20. Hertford Heath; *S.C.M.* V.-c. 21. Railway bank, Clapton, 1890, *F.J.H.*; *Hb.Mus.Brit.*; 1901; *C.N.* Ickenham; *C.S.N.* Hendon, 1912, *P.H.C.*; *Hb.L.N.H.S.* South Mimms; *P.H.C.*; 1945; *D.H.K.* East Bedfont; *B.W.* Hanwell; Pinner; Uxbridge; Brentford; Ealing; Kensington Gardens, 1944-52; *D.H.K.* West Heath, Hampstead, 1949; *E.C.W. & D.H.K.* Laneside near Tower of London,

1943, *J.E.L.*; *Lond. Nat.*, 24, 10 (1945). V.-c. 24. Fulmer, 1906; Denham; *P.H.C.*

E. LANCEOLATUM Seb. & Maur. *Spear-leaved Willow-herb.* Woods, dry waste places, railway banks and roadsides. Local. V.-c. 16. Bickley; W.W. Fox Lane, Keston; Joyden's Wood, 1937, *P.H.C.*; *Hb.L.N.H.S.*; 1946; The Thrift, near Greenhithe; Swanscombe and Mount's Woods, 1946; *F.R.*; 1950; Darenth Wood, 1950-51; *H.M.P.* V.-c. 21. Shadwell Basin, 1945, *J.E.L.*; *Hb.L.*—see *Lond. Nat.*, 25, 14 (1946).

× *MONTANUM*. V.-c. 21. Roadside near Edmonton, 1947, *D.H.K.*; *Hb.K.* det. *G.M.A.*

E. MONTANUM L. *Broad-leaved Willow-herb.* Woods, hedgebanks, railway banks, and as a persistent garden weed. Common in all the v.-cc.

× *OBSCURUM*. V.-c. 21. Clapton railway station, *F.J.H.*; *J. Bot.*, 29, 9 (1891).

× *PARVIFLORUM*. V.-c. 17. Greystone limeworks, Merstham, 1943, *J.E.L.*; *Hb.L.* teste *G.M.A.* Neglected garden, Honor Oak Road, Forest Hill, *H.K.A.-S.* det. *G.M.A.*; *B.S.B.I.* 1951 *Year Book*, 78.

× *ROSEUM*. V.-c. 17. Epsom Sewage Farm, 1938, *A.E.E.*; *Hb.E.C.M.* "Either this or *E. ROSEUM* × *ADENOCaulon*"; *G.M.A.* Neglected garden, Honor Oak Road, Forest Hill, *H.K.A.-S.* det. *G.M.A.*; *B.S.B.I.* 1951 *Year Book*, 78. V.-c. 21. Railway bank, Clapton, 1890, *F.J.H.*; *Hb.Mus.Brit.*

E. PALUSTRE L. *Marsh Willow-herb.* Marshes, ditches and pond verges. Rather local. V.-c. 16. Westerham, 1921; *R.W.R.* V.-c. 17. Wimbledon Common; W.W. Limpsfield, local, 1921; *R.W.R.* Bookham Common, 1950; *D.H.K.* V.-c. 18. Ongar Park Wood, 1909; *R.W.R.* Chigwell; Lambourn; Little Warley; *R.W.R.* Epping Forest, near 'The Rising Sun', Walthamstow, *R.W.R.*; *Tr.L.N.H.S.* 1915, 44 (1916). Abridge; *C.S.N.* V.-c. 20. North Mimms; *E.M.D.* Wormley Wood, 1910, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Queen's Wood, Highgate; *C.S.N.* Bayhurst Wood, Ruislip; *F.E.W.* Hampton Court Park, 1944; *B.W.*; Walton Bridge; near Poyle; Gutteridge Wood, Northolt; Brent Park, Hendon, 1944-52; *D.H.K.*

OENOTHERA L.

O. BIENNIS L. *Evening Primrose.* Alien. N. America. A garden escape well naturalised on railway banks, waste ground and rubbish-tips. Common in all the v.-cc. except 19 where it is so far unrecorded.

O. ERYTHROSEPALA Borbás, *O. LAMARKIANA* De Vries, non Ser. Alien. N. America. Garden escape naturalised on railway banks, waste ground

and rubbish-tips. Not common, or overlooked as *O. BIENNIS*. V.-c. 21. Rubbish-tip, Hanwell, abundant, 1950-52; *D.H.K.* Rubbish-tip, Hounslow Heath, 1952, *D.H.K.*; *Hb.K.*

CIRCAEA L.

C. LUTETIANA L. *Common Enchanter's Night-shade*. Woods, shady places, and as a persistent garden weed. Very common throughout the area.

LOASACEAE

MENTZELIA L.

M. ALBICAULIS (Dougl.) Dougl. Alien. N. America. V.-c. 17. Mortlake, 1921; *J.E.C.*

CUCURBITACEAE

COLOCYNTHIS Mill.

C. CITRULLUS (L.) O. Kuntze. *Water Melon*. Alien. Africa, etc. V.-c. 18. Waste ground, Dagenham, 1933, *R.M.*; *Hb.L.*

CUCUMIS L.

C. SATIVUS L. *Cucumber*. Alien of cultivated origin. V.-c. 21. Rubbish-tip, Hanwell, 1947-51; *D.H.K.*

C. MELO L. *Musk Melon*. Alien. S. Asia and Tropical Africa. V.-c. 21. Rubbish-tip, Hanwell, 1946; *D.H.K.*

CUCURBITA L.

C. PEPO L. *Pumpkin*. Alien. Tropical America. V.-c. 16. Rubbish-tip, Sevenoaks, 1948; *D.McC.* V.-c. 21. Rubbish-tip, Northolt, 1948; *D.H.K.*

BRYONIA L.

B. DIOICA Jacq. *White Bryony*. Climbing over hedges. Common in all the v.-cc.

AIZOACEAE

TETRAGONIA L.

T. TETRAGONOIDES (Pall.) O. Kuntze, *T. EXPANSA* Muft. *New Zealand Spinach*. Alien. Australasia. V.-c. 17. Ham gravel pits, 1936, *P.H.C.*; *Hb.L.N.H.S.* Rubbish-tip, Mortlake, 1943; *B.W.* V.-c. 21. Rubbish-tip, Hanwell, 1947; *J.E.L.* & *D.H.K.* Hackney Marshes, 1947; *D.H.K.* Rubbish-tip, Greenford, 1951-52; *D.H.K.*

HYDROCOTYLACEAE

HYDROCOTYLE L.

H. VULGARIS L. *Marsh Pennywort*, *White-rot*. Bogs and marshes, especially on acid soils. Local. V.-c. 16. Pauls Cray Common; Keston Bog; *P.H.C.*; 1952; *J.E.L.* V.-c. 17. Black Pond, Esher Common; Arbrog Common, 1915; *E.B.B.* Wimbledon Common, 1932; *P.H.C.*; 1941; *D.H.K.*; Farm Bog, 1942, *J.E.L.*; *Hb.L.* Bookham Common, 1930; *P.H.C.*; 1948, *E.B.Ba.* & *C.P.C.*; *Lond. Nat.*, 28, 55 (1949). Itchingwood Common, Limpsfield, 1919; Reigate Heath, 1921; Limpsfield

Chart, 1930; *R.W.R.* Clapham Common, *F.J.H.*; *Fl. Surrey*, 334. Richmond Park, 1943-52; Sheen Common, 1942; *B.W.* V.-c. 18. High Beech; *E.M.D.* Epping, 1910, *P.H.C.*; *Hb.L.N.H.S.* Hainault Forest, 1908; *P.H.C.* Little Warley; *C.S.N.* V.-c. 19. Wake Arms Bog, 1951; *F.R.* V.-c. 20. Totteridge Green; *C.S.N.*; 1950; *D.H.K.* Colney Furze Field, 1913; *C.S.N.* Aldenham Reservoir, 1923; *L.J.T.*; 1941; *J.B.*; 1952; *D.H.K.* Hertford Heath, 1950; *S.C.M.* V.-c. 21. Stanmore Common; *C.S.N.*; 1952; *D.H.K.* East Bedfont; *P.H.C.* Harefield; Harrow Weald Common; Grimsdyke; Ruislip Common; Bushy Park, 1932-52; *D.H.K.* Hampstead Heath; *C.S.N.*; still on the East Heath, 1952; *D.H.K.* Staines Moor; *M.C.* Verge of lake, Buckingham Palace Grounds, 1951; *D.E.* V.-c. 24. Black Park, 1899; *A.W.B.*; 1931; *J.C.R.*; 1946-52; *D.H.K.*

UMBELLIFERAE

BOWLESIA Ruiz & Pav.

B. TENERA Spreng. Alien. S. America. V.-c. 16. Catford, 1920; *B.T.L*

ERYNGIUM L.

[*E. CAMPESTRE* L. This interesting species persisted until recently not far outside the area on a chalkdown near Wrotham, Kent—see *J. Bot.*, 68, 250 (1930).]

E. PLANUM L. Alien. Europe. Garden outcast. V.-c. 21. Rubbish-tip, Hounslow Heath, 1951, *J.E.L.*, *D.McC.* & *D.H.K.*; *Hb. K. & L.*; 1952; *A.W.W.*; *D.H.K.*

ASTRANTIA L.

A. MAJOR L. Alien. Europe. Escape from cultivation. Very rare. V.-c. 21. Naturalised by the Canal, Hampton Court, 1946; *B.W.*

SANICULA L.

S. EUROPAEA L. *Sanicle*. Woods and shady places. Rather common. V.-cc. 16 and 17. Frequent, especially on the chalk. V.-c. 18. High Beech; *E.M.D.* Woodredon Hill, 1910, *P.H.C.*; *Hb.L.N.H.S.* Abundant in many parts of Epping Forest; *B.T.W.* Lambourn; *R.W.R.* Purfleet; *P.H.C.* V.-c. 19. Epping Lower Forest, 1909; *V.R.C.*; 1951; *L.N.H.S. Excursion*. V.-c. 20. Napsbury, 1909; Bricket Wood; *P.H.C.* Hadley Wood, 1898, *E.M.D.*; *Hb.L.N.H.S.* Garrett Wood, Springwell; Rickmansworth; *D.H.K.* V.-c. 21. Frequent on the chalk at Harefield and Springwell. Highgate Woods; *C.S.N.* Hadley Wood; *E.M.D.*; 1946; *D.H.K.* Stanmore Common; Scratch Wood; Brockley Hill; Mimmshall Wood, 1939-52; *D.H.K.* Whitewebbs Park, 1952; *L.M.P.S.* V.-c. 24. Denham; *D.H.K.*

CONIUM L.

C. MACULATUM L. *Hemlock*. Streamsides, woodland rides, damp waste ground and rubbish-tips. Common throughout the area, especially on heavy soils.

SMYRNIUM L.

S. OLUSATRUM L. *Alexanders*. Banks of the tidal estuary, hedgebanks, waysides and waste places. Locally abundant. V.-c. 16. Stone to Dartford, 1914; *C.L.W.* Near Northfleet, 1919, *P.H.C.*; *Hb.B.*; 1938, *P.H.C.*; *Hb.L.N.H.S.*; 1951; *H.M.P.* Stone Marshes, *P.H.C.*; *Hb.L.N.H.S.*; 1951; *H.M.P.* Between Dartford and Littlebrook, 1930; *R.W.R.* V.-c. 17. Upper Selsdon Road. Croydon, 1944, *C.T.P.*; *Hb.L.* Riverside, Ham, near Richmond, 1953; no doubt brought down by flood water from Hampton Court; *B.W.* V.-c. 18. Bromley-by-Bow Gasworks, 1938; *R.P.D.* teste *R.S.R.F.* V.-c. 21. Towing-path, Hampton Court, 1905; *C.S.N.*; 1926 and 1944, *J.E.L.*; *Hb.L.*; still abundant, 1952; *D.H.K.* Harefield, 1907, *A.L.*; *Hb.S.L.B.I.* West Drayton, 1910, *P.H.C.*; *Hb.L.N.H.S.* Cowley, 1915; *J.E.C.*; two plants, 1946; *D.H.K.* Hanworth Road, Hounslow. 1947; *A.W.W.*

S. PERFOLIATUM Mill. Alien. Europe. Naturalised on waste ground, and as a weed of flower beds. Rare. V.-c. 17. Flower bed weed, Battersea Park, 1939. *G.M.G.*; *Hb.L.N.H.S.* Under bushes, Kew Road, Richmond, 1948-53. no doubt escaped from Kew Gardens, *B.W.*; *Hb.W.* V.-c. 21. Burton's Court, Chelsea, 1940-51; *D.H.K.* First recorded by the Hon. Mr. Justice Talbot in *B.E.C. 1935 Rep.*, 30 (1936).

BUPLEURUM L.

B. FRUTICOSUM L. Alien. S. Europe and N. Africa. Naturalised on a railway bank. Rare. V.-c. 16. Well established on a railway bank, Horton Kirby, 1937, *J.E.L.*; *Hb.L.* — see also C. E. Britton, *J. Bot.*, 74, 355 (1936).

B. ROTUNDIFOLIUM L. *Hare's-ear*, *Thorow-wax*. Cornfields and cultivated ground. Very rare. V.-c. 16. Swanley, 1883, *F.J.H.*; *Hb.Mus. Brit.* V.-c. 18. Garden weed, Chingford, 1902, *J.O.B.*; 1905, *J.O.B.*; *Hb.L.N.H.S.* V.-c. 21. Whetstone, 1906; Yiewsley, 1908; *J.E.C.*

B. TENUISSIMUM L. *Smallest Hare's-ear*. Salt marshes and waste places near the tidal estuary. Locally plentiful. V.-c. 16. River-wall, Stone Marshes; *W.W.* River-wall, Swanscombe Marshes, 1946; *F.R.*; 1948; *H.M.P.* V.-c. 18. Riverside, Grays, 1949, *B.W.* & *J.E.L.*; *Hb.L.*

B. LANCIFOLIUM Hornem, *B. SUBOVATUM* Link. Alien. Mediterranean region. V.-c. 17. Garden weed. Tooting, 1917. *J.E.W.*; *Hb.L.* V.-c. 21. Hackney Marshes, 1913, 1918, 1920, 1923 and 1925-26; Yiewsley, 1924; *J.E.C.*

APIUM L.

A. GRAVEOLENS L. *Wild Celery*. Ditches and damp places near the tidal Thames. Locally common. V.-c. 16. Littlebrook Marshes, 1930; *R.W.R.* Stone Marshes; *P.H.C.* Erith Marshes, 1937, *P.H.C.*; *Hb.L.N.H.S.* Near Crayford Ness, 1951; *B.W.*, *J.C.C.* & *J.E.L.* V.-c. 18. Rainham, 1905; *L.B.H.* West Thurrock Marshes, 1949; *B.W.* & *J.E.L.* Creekmouth, Barking, 1951; *J.C.C.* & *J.E.L.* V.-c. 21. London Dock, on Thames embankment, 1948; *J.E.L.*

A. DULCE Mill. *Cultivated Celery*. Alien of hortical origin. Escape from cultivation, naturalised by streams and lakes. Not common. V.-c. 20. By the fishing pool, Rickmansworth, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Canal bank, Southall, 1947, *D.H.K.*; *Hb.K.*

A. LEPTOPHYLLUM Pers. (Benth.). Alien. S. America. V.-c. 17. Mortlake, 1917; *J.E.C.*

A. NODIFLORUM (L.) Reichb. f., *HELOSCIADIUM NODIFLORUM* Koch. *Common Marsh Wort*, *Fool's Watercress*. Ditches and shallow ponds. Common throughout the area. Plants are sometimes found with the umbels on peduncles a centimetre or more long, e.g. in v.-c. 17. By ponds on Great Bookham Common, 1929, and Arbrook Common, 1929 (over two cms. long), *J.E.L.*; *Hb.L.*, these have been referred to var. *LONGIPEDUNCULATUM* (F. Schultz) Druce.

A. INUNDATUM (L.) Reichb. f., *HELOSCIADIUM INUNDATUM* Koch. *Least Marsh Wort*. In ponds, lakes and ditches. Rather local, or overlooked. V.-c. 16. Chislehurst Common; *W.W.*; 1946; *F.R.* V.-c. 17. Headley Heath, *F.J.H.*; *Hb.Mus.Brit.*; 1927, *J.E.L.*; *Hb.L.*; 1951; *J.E.S.D.* Abrook Common, 1917; *L.B.H.*; 1948; West End Common, Esher, 1948; *R.A.B.* Limpsfield Chart and Common, very local, 1921; Worm's Heath, 1938; *R.W.R.* Mitcham Common, 1923, *J.E.L.*; *Hb.L.*; 1941, *P.H.C.*; *Hb.L.N.H.S.* Stew Ponds, Epsom Common, 1935; *P.H.C.*; 1951; *J.E.S.D.* Burgh Heath, 1931, *I.B.B.**; *Hb.E.C.M.*; 1932; *E.C.W.*; *Hb.L.*; 1936, *P.H.C.*; *Hb.L.N.H.S.* Great Bookham Common, 1929, *J.E.L.*; *Hb.L.*; 1952; *E.B.Ba.* Richmond Park, 1945; *B.W.* V.-c. 18. Cooks Folly Wood; *R.W.R.* Epping Forest, near Walthamstow, *R.W.R.*; *Tr.L.N.H.S.* 1915, 44 (1916). Leyton Flats, 1909; *C.S.N.* Chingford, 1908; *P.H.C.* Baldwin's Hill Pond, Loughton, 1917; *E.B.B.* V.-c. 20. Totteridge, 1901; *J.E.C.* Colney Furze Field, 1913; *C.S.N.* Hertford Heath, 1950; *S.C.M.* V.-c. 21. Whitchurch Common, 1909, *P.H.C.*; *Hb.L.N.H.S.* Stanmore; *P.H.C.* Finchley Common, 1917-19 and 1923; Staines Common, 1905 and 1911; *J.E.C.* Staines Moor, 1948; *M.C.*; 1952; *D.H.K.* Stanmore Common; Ruislip; Bushy Park, 1944-52; *D.H.K.*

AMMI L.

A. MAJUS L. Alien. S. Europe. V.-c. 17. Among lucerne in orchard, Epsom College, 1933, *A.E.E.*; *B.E.C.* 1938 *Rep.*, 42 (1939).

A. VISNAGA (L.) Lam. Alien. S. Europe. V.-c. 21. Hackney Marshes, 1924; *J.E.C.*

CARUM L.

C. CARVI L. *Caraway*. Alien. Europe, etc. V.-c. 21. Highgate, 1887; East Finchley, 1909; Yiewsley, 1910-20; Hackney Marshes, 1914 and 1917-20; Church End, Finchley, 1917 and 1927; *J.E.C.* West Drayton, 1901; *P.H.C.*; 1942; *D.H.K.* Air-raid shelter, Hyde Park, 1944; *W.J.L.S.* Bombed site, West Ealing, 1944-46; *D.H.K.* V.-c. 24. Near Iver, 1915-17; *J.E.C.*

*Barton, I. B.

PETROSELINUM Hill.

P. CRISPUM (Mill.) Airy-Shaw, *P. SATIVUM* Hoffm., *CARUM PETROSELINUM* Benth. *Parsley*. Alien. S. Europe. Naturalised in grassy waste places, though often only casual. V.-c. 16. Mount's Road, Swanscombe, 1948-51; *H.M.P.* V.-c. 21. Canal bank, Harefield, 1943-52; Hounslow Heath, 1947-52; Roxeth, 1943; *D.H.K.* Bombed site, Ebury Street, E.C.; *D.McC.* Bombed site between Queen Victoria Street and Upper Thames Street; *W.J.L.S.*

P. SEGETUM (L.) Koch, *CARUM SEGETUM* Hook. f. *Corn Caraway*. Hedgerows and grassy places, especially near the tidal estuary: Rather local. V.-c. 16. Plumstead Marshes, 1885, *F.J.H.*; *Hb.Mus.Brit.*; 1899; *J.E.C.* Horton Kirby; near Orpington; *W.W.* Littlebrook Marshes, 1930; *R.W.B.* Stone Marshes, 1947; *J.E.L. & D.H.K.* Darenth Road, near sea-wall, 1948-50; *H.M.P.* Near Crayford Ness, 1951; *B.W.*, *J.C.C. & J.E.L.* V.-c. 17. Little Woodcote, Wallington, 1933, *J.E.L.*; *Hb.L.* Roadside bank, Burdon Lane, Sutton, 1950; *R.A.B.* Top of Colley Hill, 1950; *E.M.C.I.* Cornfield W. of Sanderstead Fire Station, 1951; *J.D.L.* Banstead, 1937, *A.E.E.*; *Hb.E.C.M.* V.-c. 18. Rainham, 1905; *L.B.H.* Grays, 1912, *P.H.C.*; *Hb.L.N.H.S.* West Thurrock, 1925; *J.E.C.* V.-c. 20. Roadside bank, Hoddesdon, 1950; *R.A.B.* V.-c. 21. Harefield, several plants, 1908; *A.B.J.* Hanwell, 1912, *P.H.C.*; *Hb.L.N.H.S.* Near Perivale Church, c. 1930; *M.T.** teste *B.IV.*

SISON L.

S. AMOMUM L. *Stone Parsley*. Hedgebanks and roadsides. Frequent throughout the area, particularly on clay soils. Apparently absent from the chalk.

FALCARIA Bernh.

F. VULGARIS Bernh. Alien. Europe. Naturalised on railway banks and grassy waste places. Not common. V.-c. 16. Hayes Place, 1937; *D.McC.*: A fine old-established patch was exterminated by building in 1937. Some seedlings from it were planted on Hayes Common; *D.McC.*—see *Lond. Nat.*, 18, 31 (1939) and *B.E.C. 1936 Rep.*, 257 (1937). V.-c. 20. Near Broxbourne, 1950; *F.C.* teste *L.J.J.* V.-c. 21. Waste ground near Hounslow Heath, 1950; *D.B.*; *B.W.*, *J.G.D. & D.H.K.*; 1951-52; *D.H.K.* Railway bank between Poyle and Yeoveney, a fine well-established patch, 1951, *D.H.K.*; *Hb.K.*

SIUM L.

S. LATIFOLIUM L. *Water Parsnip*. River banks and wet places. Very local. V.-c. 17. Thorpe, *J.E.L.*; *Hb.L.N.H.S.* V.-c. 21. Wet copse near Chertsey Bridge, 1910, *C.B.G.*; *Hb.S.L.B.I.* Northwood gravel pits, 1911, *C.S.N.*; *Hb.L.N.H.S.* Near Shepperton, 1919; *J.E.C.*

*Taylor, Miss M.

BERULA Koch.

B. ERECTA (Huds.) Coville, SIUM ERECTUM Huds., S. ANGUSTIFOLIUM L. *Narrow-leaved Water Parsnip*. Ditches, canals, ponds and marshes. Not common. V.-c. 16. Near Eltham, 1920; near Shoreham, 1933; P.H.C. Ditch near Crossness, 1951; B.W., J.C.C. & J.E.L. Stone; H.M.P. V.-c. 17. Weybridge, 1901; Merstham, 1925; J.E.C.; 1948; R.M.P.; New Pond, a few plants, 1950; J.D.L. Between Richmond and Kingston, 1931; P.H.C. V.-c. 18. Near Ching Bridge on the Whitehall Road, Chingford, 1946; J.R. V.-c. 19. Near Roydon; C.S.N.; P.H.C.; Hb.L.N.H.S. V.-c. 20. Colney Heath, 1912; Watford; C.S.N. Broxbourne, 1907, C.S.N.; Hb.L.N.H.S. Aldenham; P.H.C. Rickmansworth, 1944; D.H.K. Hertford Heath, 1950; S.C.M. V.-c. 21. Shepperton, C.B.G.; Hb.S.L.B.I. Chertsey Bridge; Yiewsley; C.S.N. Uxbridge; L.B.H.; 1910; J.E.C.; 1949; D.H.K. Near Colnbrook; Harefield, 1910; J.E.C.; 1950; Springwell; Staines Moor; Yeoveney, 1944-52; D.H.K. Near Harefield Moor, 1945; B.W. Verge of lake, Syon Park, 1947; L.G.P. & R.M.P.; 1952; D.H.K. V.-c. 24. Iver; C.S.N. Denham, 1921; L.J.T.; 1944; D.H.K.

AEGOPODIUM L.

A. PODAGRARIA L. *Goutweed, Bishop's Weed, Ground Elder, Herb Gerard*. Waste places near houses, and as a persistent garden weed. Frequent in all the v.-cc.

PIMPINELLA L.

P. MAJOR (L.) Huds., P. MAGNA L. *Greater Burnet Saxifrage*. Wood borders, grassy places and hedgebanks. Locally frequent. V.-c. 16. Common on the chalk. V.-c. 17. Frequent on the chalk. By tow-path, Richmond to Ham, 1937; P.H.C. Limpsfield; W.W. Kew, 1942; D.H.K. V.-c. 18. Epping Forest, 1943, J.R.; Hb.L.N.H.S. V.-c. 20. Arkley, 1902, C.S.N.; Stanstead Street, 1912, P.H.C.; Hb.L.N.H.S. Cuffley, 1917; L.B.H. Between Woodside Park and Totteridge, 1912, C.S.N.; Hb.L.N.H.S. The last record may refer to v.-c. 21; D.H.K. V.-c. 21. Very local, and apparently confined to a small area in the north part of the county. Between Hadley Common and Cockfosters, 1946; D.H.K. Near Scratch Wood, 1948; H.C.H. The var. DISSECTA N.E.Br. is reported from v.-c. 16. Roadside near Kingsdown, 1934, A.L.S.; Hb.L.

P. SAXIFRAGA L. *Burnet Saxifrage*. Dry grassy places. Frequent throughout the area, particularly on the chalk. This variable species deserves study on modern lines. Plants with much dissected leaves (var. DISSECTA With.) are not rare.

CONOPODIUM Koch.

C. MAJUS (Gouan) Loret, C. DENUDATUM Koch, BUNIUM FLEXUOSUM Stokes. *Pignut, Earthnut*. Woods and grassy places. Frequent throughout the area, but absent from shallow chalk soils.

MYRRHIS Mill.

M. ODORATA (L.) Scop. *Sweet Cicely*. Alien. Europe, including parts of Britain. Escape from cultivation. Naturalised in grassy places. Rare. V.-c. 17. Rookwood, Limpsfield Village, well established under trees, 1921, *R.W.R.*; *Hb.R.* Bomb-crater, Brockham Hill, 1948, *J.E.L.*; *Hb.L.* V.-c. 21. Waste ground, Southgate, 1950, *M.A.R.S.S.*; *Hb.K.*; 1951-52; *M.A.R.S.S.*

CHAEROPHYLLUM L.

C. TEMULENTUM L. *Rough Chervil*. Hedgebanks and grassy places. Common throughout the area.

SCANDIX L.

S. PECTEN-VENERIS L. *Shepherd's Needle*. Cornfields, cultivated ground and roadsides. Common, but sometimes merely casual. Recorded from all the v.-cc. except 19.

ANTHRISCUS Pers.

A. SYLVESTRIS (L.) Hoffm., *CHAEROPHYLLUM SYLVESTRE* L. *Cow Parsley*, *Hedge Parsley*, *Keck*. Hedgerows, roadbanks, wood borders and waste places. Abundant throughout the area.

A. NEGLECTA Boiss. & Reut., *A. SCANDICINA* Mansf., *A. VULGARIS* Pers., non Bernh., *CHAEROPHYLLUM ANTHRISCUS* (L.) Crantz. *Bur Chervil*. Hedgebanks and waste places, especially near the tidal Thames. Local. V.-c. 16. Catford, 1907; *J.E.C.* Stone, also along road from Darenth to Dartford, 1914; *E.B.B.*; 1951; *H.M.P.* Near Well Hall railway station, 1915; *E.B.B.* Near Bromley; *W.W.* Dartford Marshes, 1930; *R.W.R.* Roadside near Northfleet, 1931, *J.E.L.*; *Hb.L.* Lessness Abbey ruins, 1950; *R.A.B.* Green Street Green, 1951; *F.R.* Near Farnborough; *L.J.T.* V.-c. 17. Weybridge, 1919; *E.B.B.* Reigate Heath, 1927, *J.E.L.*; *Hb.L.* Thames towing-path, Ham; Barnes Common, 1943; *B.W.* V.-c. 18. Barking, 1892; *J.E.C.* Rainham; *R.W.R.* Dagenham Marshes, 1920; between West Thurrock and Purfleet, 1922; *L.J.T.* Aveley; Stifford; *P.H.C.* Near Ilford, 1912; *R.W.R.* Corbet Tey, 1909; *P.H.C.* V.-c. 20. Broxbourne; *P.H.C.* Hertford, 1950; *S.C.M.* V.-c. 21. Railway embankment, Hayes, 1902; *C.S.N.*; in some plenty, 1909, *P.H.C.*; *Hb.L.N.H.S.* Yiewsley, 1910-27; *J.E.C.* Near Field Heath, 1946; rubbish-tip, Northolt, abundant, 1950; *D.H.K.* Ruislip, not uncommon; *F.E.W.*; 1949; *D.H.K.* Hounslow Heath, two plants, 1947; *B.W.* V.-c. 24. Near Iver, 1917; *J.E.C.* The British plant is var. *SCANDIX* (Scop.) Hyl. The type has glabrous fruit.

A. CEREFOLIUM (L.) Hoffm., *CHAEROPHYLLUM SATIVUM* Lam. *Chervil*. Alien. E. Europe and Asia Minor. Escape from cultivation. V.-c. 17. Limpsfield, 1925; *R.W.R.* Roadside bank, Reigate, 1935, *H.S.R.**; *Hb.L.*

*Redgrove, H. S.

FOENICULUM Mill.

F. VULGARE Mill., *F. OFFICINALE* All. *Fennel*. Banks of tidal Thames, waste ground and railway banks. Local, but sometimes only casual. V.-c. 16. Swanscombe Marshes, 1919; *P.H.C.* River bank near Crossness Sewage Works, 1927; *H.J.B.* West Wickham railway station, 1938; *D.McC.* Stone Marshes, 1951; *H.M.P.* Abbey Wood Marshes, 1952; *L.N.S. Excursion*. Railway bank, Bickley, 1952; *J.E.L.* V.-c. 17. Waste ground by River Thames adjoining Hampton Court Bridge, 1913; *E.B.B.* Near Richmond Gas Works, casual, 1943; rubbish-tip, Mortlake, 1943; Ham gravel pits, 1950; *B.W.* V.-c. 18. Woodford, 1905, *C.S.N.*; Grays, 1909, *P.H.C.*; 1913; *P.H.C.*; *Hb.L.N.H.S.* Kelvedon, 1930; *L.J.T.* West Ham waste, one plant; Thames-side, Grays, *G.L.*; *Essex Nat.*, 25, 175 (1937). Gravel-pit near South Ockenden, 1949, *L.M.P.S.*; *Hb.Mus.Brit.* V.-c. 21. Brickfield, Clapton, 1909; canal bank, Harefield, 1930; *P.H.C.* Ponders End, 1913, *P.H.C.*; *Hb.L.N.H.S.* Hackney Marshes, 1912-21; Greenford, 1920; Yiewsley, 1918-23; *J.E.C.*; 1941; *D.H.K.* West Drayton, 1936; *P.H.C.*; 1942; *D.H.K.* Cowley; Hanwell; near Feltham; Chiswick; Alperton; near Finchley; Tower of London Gardens, planted; Isle of Dogs; Hounslow; between Bedfont and Feltham; Brent Reservoir, 1933-52; *D.H.K.* Near Hounslow Heath, 1945; *B.W.*; 1946-50; *D.H.K.* Bombed site, Bread Street, E.C.; *J.E.L.*; 1952; *J.W.* V.-c. 24. Near Iver, 1918 and 1923; *J.E.C.*

OENANTHE L.

O. AQUATICA (L.) Poir., *O. PHELLANDRIUM* Lam., *PHELLANDRIUM AQUATICUM* L. *Fine-leaved Water Dropwort*. Ponds, lakes and slow streams. Local. V.-c. 17. Weybridge, 1922; *W.W.* conf. *H.W.P.* Sudbrook Park Golf Club, Petersham, about six plants in a pond, 1946; *C.L.C.* V.-c. 18. Epping, 1899; *L.B.H.* Theydon Garnon, 1907; *C.S.N.*; Little Warley, 1910; Chigwell Lane, 1939, *P.H.C.*; *Hb.L.N.H.S.* Abridge, 1908; Childerditch, 1907; Hare Street, 1908; *P.H.C.* Navestock, 1924; *L.J.T.* V.-c. 21. Hampton Court Park, 1909; *J.E.C.*; 1928; *L.J.T.*; 1944; *B.W.*; 1952; *D.H.K.* Shortwood Common, Staines, 1946-52; *D.H.K.*

O. FLUVIATILIS (Bab.) Coleman. Streams. Locally abundant, though apparently completely absent from the Society's area south of the Thames. V.-c. 20. Colne near Rickmansworth, 1923; *E.B.B.* Frequent in the Colne from Watford to Springwell, 1952; *D.H.K.* River Lea, Broxbourne, 1909, *C.S.N.*; Waltham Abbey, 1911, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Abundant in the Colne from Springwell to Staines; Frays River, from Uxbridge to Cowley; Cran from Cranford to Twickenham, 1944-52; *D.H.K.* V.-c. 24. Colnbrook; Horton, 1903; *C.S.N.* Canal near Iver, 1906, *P.H.C.*; *Hb.L.N.H.S.* Colne Brook, near Staines; *D.H.K.*

O. CROCATI L. *Hemlock Water Dropwort*. Stream and river banks. Locally abundant. V.-c. 16. Dartford Marsh, 1931; Shoreham to Otford, 1933; *P.H.C.* Hayes Ford, 1938; *D.McC.* Darenth; Stone;

Sutton-at-Hone, 1948-51; *H.M.P.* V.-c. 17. Frequent by the Thames from opposite Staines to Barnes. Barnes Common, 1943; Stag Stream, Wimbledon Common. 1946; *B.W.* Near Addlestone. 1917; *E.B.B.* Church Cobham. 1921; *L.J.T.* Kingston; Richmond Park, 1931; *P.H.C.* Limpsfield, local; *R.W.R.* Woodhurst Park. Oxted, 1931; *R.W.R.* Bookham Common, 1952; *E.B.Ba.* V.-c. 18. Lea Navigation Canal, Waltham; *L.B.H.* Edge of muddy stream E. of Bow, 1920; *L.J.T.* Chigwell Lane, 1939; *P.H.C.* Epping Forest; *R.M.P.* West Ham. *G.L.*; *Essex Nat.*, 25. 175 (1937). V.-c. 20. Watford; Rickmansworth, 1952; *D.H.K.* V.-c. 21. Frequent by the Thames from Staines to Hammersmith. Grand Union Canal from Springwell to Brentford; river Brent between Hanwell and Greenford; Regents Canal, Regents Park, 1933-52; *D.H.K.* Lake in Buckingham Palace Grounds, 1951; *D.E.* V.-c. 24. Iver; Denham; *P.H.C.*

O. PIMPINELLOIDES L. Damp grassy places. Very local. V.-c. 16. Golf course between Bickley and Petts Wood, 1943, *R.W.H.*; *Hb.L.*—see also *Lond. Nat.*, 24. 9 (1945); 1944; *J.E.L.*; 1948, *R.W.H.*; *Hb.L.N.H.S.* Darenth Meads, one clump, 1946; *F.R.* V.-c. 17. Putney Heath, one plant, 1936; *C.A.*

O. SILAIFOLIA Bieb. Damp meadows. Very local. V.-c. 17. Chertsey Meads, 1920, *E.B.B.*; 1932, *J.E.L.*; *Hb.L.*; 1947; *D.H.K.*

O. LACHENALII C. C. Gmel. Brackish and freshwater marshes. Very local. V.-c. 16. Littlebrook Marshes, 1930; *R.W.R.* Dartford Marshes. 1930; *L.J.T.* Thames marsh, Erith, 1948; *R.A.B.* V.-c. 17. Mitcham Common, 1928; *C.A.*; *Hb.L.* V.-c. 18. Salt marsh, Creekmouth, near Barking, very fine plants, 1951, *J.C.C.* & *J.E.L.*; *Hb.Kew.*

O. FISTULOSA L. *Water Dropwort*. Marshy places. Local. V.-c. 16. Sundridge; *P.H.C.* V.-c. 17. Oxshott Heath, 1899; *L.B.H.* Chertsey Meads, 1899; New Haw Lock, near Addlestone, 1917; *E.B.B.* Abrook; *W.W.* Headley Heath, 1926; *L.J.T.* Ham Common, 1933; *C.A.*; 1943; Putney Heath, 1945; *B.W.* Mitcham Common, 1922; West End Common, Esher, 1929, *J.E.L.*; *Hb.L.* V.-c. 18. Little Warley, 1907; Grays, 1908; *P.H.C.* Near Shenfield, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Colne banks, Colney Heath, 1910, *C.S.N.*; *Hb.L.N.H.S.*; 1950; *S.C.M.* V.-c. 21. Near Chertsey Bridge, 1904, *C.B.G.*; *Hb.S.L.B.I.* Yiewsley, 1912-20; Staines Moor, 1910; *J.E.C.*; still plentiful, 1952; *D.H.K.* Cowley; *P.H.C.* Marsh by river Brent between Hanwell and Greenford, 1919; *L.J.T.*; gone by 1933; *D.H.K.* Ditches near the railway, Clapton; *C.N.* Shortwood Common, Staines; Knowle Green; Yeoveney; *D.H.K.* V.-c. 24. Near Colnbrook, 1910; *C.S.N.*; 1952; *D.H.K.*

AETHUSA L.

A. CYNAPIUM L. *Fool's Parsley*. Cultivated and waste ground. Common throughout the area. The var. *AGRESTIS* Wallr. is reported from v.-c. 17. Field near Addington, 1924, *J.E.L.*; *Hb.L.* V.-c. 21. Harefield; Harmondsworth; Staines; *D.H.K.*

SILAUM Mill.

S. SILAUS (L.) Schinz & Thell., S. FLAVESCENS Bernh., S. PRATENSIS Bess. *Pepper Saxifrage*. Meadows and grassy places on clay soil. Common. Recorded from all the v.-cc. except 19.

ANGELICA L.

A. SYLVESTRIS L. *Wild Angelica*. Streamsides, damp meadows and wet woods. Common throughout the area. The var. DECURRENS Fisch., Mey & Ave Lall. is recorded from v.-c. 21. Staines; Laleham; Isleworth; D.H.K.

A. ARCHANGELICA L., ARCHANGELICA OFFICINALIS Hoffm. Alien. Europe. Escape from cultivation. Naturalised on river banks and in waste places. Locally abundant. V.-c. 17. Scattered along the Thames bank from Kingston to Kew, 1931-32; P.H.C. Mortlake, 1928; J.E.C.; 1944; Kew Bridge, 1930, J.E.L.; Hb.L. Putney, 1941, P.H.C.; Hb.L.N.H.S. V.-c. 18. Abundantly along all the tidal streams of the River Lea, G.L., *Essex Nat.*, 25, 175 (1937). V.-c. 21. Hackney Marshes, 1927; J.E.C. Hampton Court, 1936; A.B.; 1952, but surely planted; D.H.K. Along the Thames bank from Isleworth to Chiswick, 1932-52; D.H.K. By Pymmes Brook, Edmonton, 1950; R.M.P.

PASTINACA L.

P. SATIVA L., PEUCEDANUM SATIVUM (L.) Hook. f. *Wild Parsnip*. River banks, roadsides and grassy places. Common in all the v.cc. The var. EDULE DC. is not rare.

ANETHUM L.

A. GRAVEOLENS L. *Dill*. Alien. Europe. V.-c. 17. Earlswood Pond rubbish-tip, 1948, B.M.C.M.; Hb.L. V.-c. 18. Rubbish-tip, Dagenham, 1934, J.E.L.; Hb.L. V.-c. 20. Gravel pit, Hertford, 1920, A.W.G.; Hb.L. Bombed sites, Great Tower Street, E.C., 1944-46, and near Holborn Circus, E.C., 1946, J.E.L.; Hb.L. Rubbish-tip, Hanwell, 1946-47, D.H.K.; Hb.K. Rubbish-tip, Greenford, 1947; D.H.K.

HERACLEUM L.

H. MANTEGAZZIANUM Somm. & Lev. *Giant Hogweed*. Alien. Caucasus. Naturalised on stream banks and waste ground. Locally abundant. V.-c. 16. Catford, 1920; B.T.L. Streamside near Lewisham, 1951; D.H.K. V.-c. 17. Caterham; P.H.C. V.-c. 18. Dagenham Dock, 1927, R.M.; 1948, abundant, J.E.L.; Hb.L.; 1950; D.H.K. V.-c. 21. Hampton Court Park, abundant by the Hampton Wick Gate, 1928; L.J.T. Thames side, Chiswick, abundant, 1939-52; Brent banks, Stonebridge to Hanwell, 1933-52; Hackney Marshes, 1945; Kensington Gardens and Hyde Park, planted, but many spontaneous seedlings, 1944-52; D.H.K. Grounds of Natural History Museum, South Kensington, 1949; E.B.Ba. & J.B.E. Bombed site, Theobalds Road, W.C., one plant, 1950, J.W.; Hb.Mus.Brit.

H. SPHONDYLIIUM L. *Cow Parsnip, Hogweed*. Woods, hedgebanks, roadsides and grassy waste places. Frequent throughout the area.

[TORDYLIUM L.

T. MAXIMUM L. *Great Hartwort*. This rare species occurs near the boundary of our area in v.-c. 18. There are old records from Surrey, Essex and Middlesex, and although there appear to be no modern reports of its occurrence within the area it may yet be refound.]

CAPNOPHYLLUM Gaertn.

C. PEREGRINUM (L.) Lange. *TORDYLIUM PEREGRINUM* L. Alien. Mediterranean region. V.-c. 21. Yiewsley, 1924; *J.E.C.*

CORIANDRUM L.

C. SATIVUM L. *Coriander*. Alien. Europe. V.-c. 17. Mortlake, 1916; *J.E.C.* Riverside just below Kew Gardens, near Ferry Lane, 1944; *E.W.D.* det. *Kew*. Thames side near Hammersmith Bridge, two plants, 1948; *R.A.B.*; *B.W.*; *Hb.W.* Earlswood Pond rubbish-tip, 1948; *B.M.C.M.* Mitcham Common; *J.E.C.* Waste ground, Tamworth Lane, near Mitcham Common, 1930, *J.E.L.*; *Hb.L.*—see *Wats. B.E.C. 1930-31 Rep.*, 73 (1931). Eastfields, Mitcham, 1916, *J.E.W.*; *Hb.L.* The plant was formerly cultivated about Mitcham. V.-c. 18. Rainham, 1920; *L.B.H.* Dagenham Dock, 1927; *J.E.C.*; *P.H.C.*; 1937, *A.H.G.A.*; *Hb.Mus.Brit.* V.-c. 21. Yiewsley; Hendon, 1915; *J.E.C.* Shepperton, 1945; rubbish-tip, Hanwell, 1946-50; *D.H.K.* Hackney Marshes, 1913, 1915, 1917-18, 1921, 1924 and 1926; *J.E.C.* Isleworth, 1945; *A.W.W.* Bombed site by St. Dunstan's in the East, E.C., in quantity, 1948; *J.E.L.*

CUMINUM L.

C. CYMINUM L. Alien. Asia. V.-c. 18. Dagenham, 1936, *J.P.M.B.*; *Hb.L.*—see *B.E.C. 1936 Rep.*, 259 (1937). V.-c. 21. Hackney Marshes, 1917-18; *J.E.C.*

BIFORA Hoffm.

B. TESTICULATA (L.) Roth. Alien. Europe. V.-c. 21. Winchmore Hill, *L.B.H.*; *B.E.C. 1930 Rep.*, 355 (1931).

DAUCUS L.

D. CAROTA L. *Wild Carrot*. Fields and grassy places. Common throughout the area, particularly on the chalk.

CAUCALIS L.

C. DAUCOIDES L., *C. LAPPULA* Grande. *Small Bur-parsley*. Alien. Europe. V.-c. 21. Hadley Common, 1905; near Hayes, 1906, *P.H.C.*; *Hb.L.N.H.S.* Muswell Hill, 1906; Hackney Marshes, 1912-14; Potters Bar, 1914; *J.E.C.* V.-c. 24. Near Iver, 1916; *J.E.C.*

TORILIS Adans.

T. JAPONICA (Houtt.) DC., *T. ANTHRISCUS* (L.) C. C. Gmel., non Gaertn. *Upright Hedge-parsley*. Hedgebanks and grassy places. Common in all the v.-cc.

T. ARVENSIS (Huds.) Link, *T. INFESTA* Spreng. *Spreading Hedge-parsley*. Arable fields. Not common. V.-c. 16. Stone Marshes, 1931; *P.H.C.* Swanscombe Marshes, 1935, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 17. Fetcham Downs, 1932; *P.H.C.* Above Oxted; near Limpsfield, 1923; *R.W.R.* Chalky field, Addington, 1936, *A.L.S.*; Chipstead Valley, 1043, *J.E.L.*; *Hb.L.* Gravel pit, Eastly End, Thorpe, 1945, *J.E.L.*;

B.E.C. 1946-47 *Rep.*, 296 (1948). V.-c. 18. Woodhatch, 1907, *C.S.N.*; 1910, *P.H.C.*; *Hb.L.N.H.S.* South Weald, 1908; Purfleet; Aveley, 1935; *P.H.C.* Laindon, 1918; *J.E.C.* V.-c. 20. Near Croxley Green, 1903; near Watford, 1906, *C.S.N.*; *Hb.L.N.H.S.* Broxbourne; *L.B.H.* Great Amwell, 1908; *P.H.C.* Colney Heath, 1913; *C.S.N.* Rickmansworth, 1919, *E.B.B.*; *Hb.B.* V.-c. 21. Harefield, 1913-19; near Colnbrook, 1913; near South Mimms, 1922; *J.E.C.*; 1947; *D.H.K.* Harmondsworth, 1945, *B.W.* & *D.H.K.*; *Hb.K.* V.-c. 24. Colnbrook, 1909; *P.H.C.* Horton, 1912, *P.H.C.*; *Hb.L.N.H.S.*

T. NODOSA (L.) Gaertn. *Knotted Hedge-parsley*. Dry rather bare banks and grassy places. Locally plentiful, especially near the Thames. V.-c. 16. Near Northfleet, 1919; *P.H.C.* Littlebrook Marshes, 1930; *R.W.R.* Stone Marshes, 1939, *P.H.C.*; *Hb.L.N.H.S.* Near Crayford Ness, 1951; *B.W.*, *J.C.C.* & *J.E.L.* V.-c. 17. Thames side, Ham, 1871, *F.J.H.*; *Hb.Mus.Brit.* River wall, Petersham Meadows, 1945; *B.W.* Roadside near Epsom College, 1944, *J.E.L.*; *Hb.L.* V.-c. 18. Purfleet, 1913; *P.H.C.* Hale End, casual, 1914; *R.W.R.* V.-c. 20. Bayford, 1910, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Hornsey; Fortis Green, 1911; West Drayton, 1914; Hackney Marshes, 1915; Yiewsley, 1922; *J.E.C.* Uxbridge, 1907, *C.B.G.*; *Hb.S.L.B.I.* Thames side Staines to Kingston Bridge, 1939-52; *D.H.K.* Canal path, Hanwell, 1946, *B.W.* & *D.H.K.*; *Hb.K.*; 1947-52; *D.H.K.* V.-c. 24. Colnbrook, 1906; *P.H.C.* The var. *PEDUNCULATA* (R. & F.) Druce is reported from v.-c. 17. Bank by Thames towing-path, Ham, 1946; *B.W.* V.-c. 21. Penton Hook; *D.H.K.*

ARALIACEAE

HEDERA L.

H. HELIX L. *Ivy*. Climbing, or creeping in woods, and on hedge-banks and walls. Frequent throughout the area.

CORNACEAE

CORNUS L.

C. SANGUINEA L. *Dogwood*. Woods, scrub and hedges. Frequent throughout the area, particularly on the chalk.

ADOXACEAE

ADOXA L.

A. MOSCHATELLINA L. *Moschatel, Townhall Clock*. Woods and hedge-banks. Locally abundant, particularly on the chalk. V.-c. 16. N.E. of Otford, 1922; *L.J.T.* Abbey Wood; Chelsfield to Shoreham, 1930; *P.H.C.* Near Westerham, 1924; *R.W.R.* Kingsdown, 1929; *J.C.R.* Keston, 1938; *D.McC.* V.-c. 17. Norbury Park, 1917; Limpsfield, 1917; Chipstead, 1922; *E.B.B.* Near Tadworth, 1922; near Ashted, 1926; *L.J.T.* By river Mole, Leatherhead, 1935; Merstham Quarry to Chalton, 1936; Titsey Hill, 1937; *P.H.C.* Near Merstham, 1937, *P.H.C.*;

Hb.L.N.H.S. Woldingham, 1921; Bletchingly, 1925; *R.W.R.* Chesham, 1931; *J.C.R.*; 1950; *R.M.P.* Oxted, 1937; *P.H.C.* Box Hill 1942; *D.H.K.* Banstead Downs; *L.G.P.* Bookham Common, 1952; *C.P.C.* V.-c. 18. Epping Forest, 1898, *F.E.M.*; Highams Park, 1902, *J.O.B.*; *Hb.L.N.H.S.* Theydon Garnon, 1909; Lark's Wood and Gunner's Grove, abundant, 1910; copses, Coopersale Lane; *P.H.C.* Toot Hill; *J.A.S.* Painesshaw, Navestock Side, 1926; *B.T.W.* V.-c. 20. Bricket Wood, 1906; *P.H.C.* Oxhey Woods; *C.S.N.* Napsbury, 1909, *P.H.C.*; *Hb.L.N.H.S.* Munden, 1909; *C.S.N.* Park Street, 1906; *P.H.C.* V.-c. 21. Temple Fortune, 1917-26; *J.E.C.* Harefield, 1928; *H.S.*; 1944-52; Park Wood, Ickenham, 1945; *D.H.K.* Streamside near Bayhurst Wood, Northwood, 1928; *B.T.W.* Near Mimms Wash, 1946; *B.W.*

CAPRIFOLIACEAE

SAMBUCUS L.

S. RACEMOSA L. *Red-fruited Elder*. Alien. Europe and W. Asia. Planted in woods and copses. Not common. V.-c. 16. Between Chesham and Shoreham, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 19. Copy Wood, near Nazeing, 1915, *C.S.N.*; *Hb.L.N.H.S.*

S. NIGRA L. *Elder*. Woods, hedges, railway banks and waste places. Common throughout the area. The var. *LACINIATA* L. is reported from v.-c. 16. Near Northfleet, 1938, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 17. Headley Heath, 1919, *C.E.B.*; *B.E.U.* 1919 *Rep.*, 822 (1920); 1922; *L.J.T.*; 1944, *J.E.L.*; *Hb.L.*—see also *Lond. Nat.*, 24, 12 (1945). Near Gatton Park, Merstham, 1925, *J.E.L.*; *Hb.L.* Spinney, Boundary Road, Wallington, 1944, *A.E.E.*; *Hb.E.C.M.* V.-c. 21. Syon House grounds, Brentford, 1927; *L.J.T.* Thames side, Chiswick, c. 1940; *L.G.P.*; 1952; *D.H.K.* Hanworth, 1945; *B.W.* and the var. *VIRIDIS* Ait. has been found in v.-c. 20. Hadley, one tree, 1923-24; *J.E.C.* V.-c. 21. Church End., Finchley, 1918-23; by canal, Yiewsley, one tree, 1920-23; *J.E.C.* Near Ruislip, one tree, 1942; *S.B.*; 1946; *S.B. & D.H.K.*; 1950; *D.H.K.* Near canal, Hanwell, several bushes, 1944; *B.W.*; 1945-52; *D.H.K.*

S. EBULUS L. *Dwarf Elder*, *Danewort*. Roadsides and waste places. Rare. V.-c. 18. Bromley-by-Bow Gasworks, 1938; *R.P.D.* teste *R.S.R.F.* V.-c. 21. Marsh Farm Road, Twickenham, 1945; Osterley Park, 1945-52; *D.H.K.*

VIBURNUM L.

V. OPULUS L. *Guelder Rose*. Woods, scrub and hedges, especially in damp places. Rather common. V.-c. 16. Near Dunton Green, 1915; *F.B.B.* Lock's Bottom; Joyden's Wood, 1917; Sundridge to Chevening, 1930; *P.H.C.* Abbey Wood, 1927; *H.J.B.* Sidcup to Hayes, 1931; *P.H.C.* Kingsdown, 1929; *J.C.R.* Brasted, 1924; *R.W.R.* V.-c. 17. Common, also occurring on the chalk. V.-c. 18. Near Snaresbrook; *R.W.R.* Near Dagenham, 1919; *J.H.C.** Near Connaught Water,

*Capleton, J. H.

Epping Forest, 1926; *B.T.W.* Greensted; *R.M.P.* V.-c. 19. Epping Lower Forest; *R.M.P.* V.-c. 20. Lea Valley, near Dob's Weir, 1909; *O.R.C.* Broxbourne, 1904, *E.M.D.*; *Hb.L.N.H.S.* Colney Heath, 1914; Finch's Avenue; *C.S.N.* Near North Mimms, 1930; Bushey; Essendon; *P.H.C.* Hertford Heath, 1950; *S.C.M.* V.-c. 21. Uxbridge; *P.H.C.*; 1950-52; *D.H.K.* Harmondsworth, 1909, *P.H.C.*; *Hb.L.N.H.S.* Harefield, 1910; *J.E.C.*; 1944-52; *D.H.K.* Canal Side N. of Harefield, 1922; *L.J.T.*; 1952; *D.H.K.* Swakeleys, 1927; *L.J.T.* Crouch End Fields; *C.S.N.* Temple Fortune, 1910; between Potters Bar and South Mimms, 1930; *P.H.C.* Coldfall Wood, Highgate; *E.M.D.* Winchmore Hill; *L.S.* Bishops Wood, Hampstead, 1902; *C.E.N.*; 1914; Highgate Wood, 1899-1900; Denham Lock, 1912; *J.E.C.*; 1952; *D.H.K.* Yiewsley, 1913-16; *J.E.C.*; 1950-52; *D.H.K.* Laleham Park; *A.W.W.* Wyke Green, 1933; Staines; *D.H.K.* V.-c. 24. Colnbrook; Denham; *P.H.C.* Fulmer, 1913, *P.H.C.*; *Hb.L.N.H.S.*

V. LANTANA L. *Wayfaring Tree.* Woods, hedges and thickets. Locally abundant. V.-c. 16. Frequent on the chalk. V.-c. 17. Common on calcareous soils. Also on Epsom Common, 1939; *P.H.C.* Petersham Common, two bushes, 1943; Coombe Wood, Wimbledon, 1945; *B.W.* V.-c. 18. Purfleet, 1913; Blake Hall, Ongar, 1931; *P.H.C.* Hangman's Wood, Grays, 1913; *C.S.N.* Bromley-by-Bow Gasworks, 1938; *R.P.D.* teste *R.S.R.F.* V.-c. 20. Apparently very rare even on the chalk. Munden, 1909, *P.H.C.*; *Hb.L.N.H.S.* Essendon, 1920; *P.H.C.* Hertford Heath, 1950; *S.C.M.* V.-c. 21. Very rare on the chalk. Harefield, 1927; *L.J.T.*; 1952; *D.H.K.* By river Cran, Hounslow Heath, 1946; *A.W.W.* Staines Moor; *D.H.K.* V.-c. 24. Between Denham and Chalfont, 1930; *P.H.C.*

SYMPHORICARPOS Duhamel

S. RIVULARIS Suksdorf, *S. RACEMOSUS* auct., *S. ALBUS* (L.) S. F. Blake var. *LAEVIGATUS* (Fern.) S. F. Blake. *Snowberry.* Alien. N. America. Planted, and naturalised, in woods, copses and thickets, and on roadbanks, and by waysides. Rather common. Recorded from all the v.-cc. except 19.

LONICERA L.

L. CAPRIFOLIUM L. *Perfoliate Honeysuckle.* Alien. Europe and Asia Minor. Naturalised in a hedge. Very rare. V.-c. 17. Headley Lane, near Mickleham, 1923, *J.E.L.*; *Hb.L.*; 1936, *D.McC.*; *Lond. Nat.*, 18, 31 (1939); still there but difficult to find; *J.E.L.*

L. PERICLYMENUM L. *Common Honeysuckle.* Woods, thickets and hedges. Frequent throughout the area.

[*L. XYLOSTEUM* L. *Fly Honeysuckle.* Has not so far been reported by our members, but it occurs in a thicket in Richmond Park (v.-c. 17), where it was no doubt planted (teste *B.W.*). There are old records of it in hedges at Chelsham and Cobham in Surrey, and it may yet be refound in the area.]

RUBIACEAE

RUBIA L.

R. TINCTORUM L. Alien. S. Europe. Yiewsley, 1914; *J.E.C.*

GALIUM L.

G. MOLLUGO L. *Great Hedge Bedstraw*. Hedgebanks, open woodlands and grassy places. Locally abundant. V.-cc. 16 and 17. Common and widely distributed. V.-c. 18. Chingford; Lambourn; near Aveley; Navestock; Brentwood; *R.W.R.* Hainault Forest, 1908; *P.H.C.* V.-c. 20. Between High Barnet and Elstree; *L.B.H.* Chandlers Cross; *C.S.N.* Bricket Wood; North Mimms; St. Albans; near Broxbourne; Essendon; *P.H.C.* Arkley, 1908, *C.S.N.*; Hoddesdon, 1910, *P.H.C.*; *Hb.L.N.H.S.* Panshanger Park, 1943; *L.J.T.* V.-c. 21. Rather local, and absent from large areas of the county. Edgware, 1871, *F.J.H.*; *Hb.Mus.Brit.* Hayes, 1909; *P.H.C.* Penton Hook Lock; *C.S.N.* Harefield; Ruislip, 1922; New Years Green, 1925; *L.J.T.*; seen in all three places, 1952; *D.H.K.* Clapton Marshes; *J.E.G.* Gravel pit, Bedfont; *A.W.W.* Hillingdon; Elstree; Springwell; Deacon's Hill; Greenford; Perivale, 1933-52; *D.H.K.* Highgate Cemetery, 1945; *R.S.R.F.* V.-c. 24. Fulmer; Horton; *P.H.C.* Denham; *D.H.K.* A very variable species. Specimens collected by *C.E.B.* under the following varietal names are in *Hb.L.*:—var. *NEMOROSUM* (Wierzb.) *H.Br.* V.-c. 17. Warlingham, 1933. var. *PYCNOTRICHUM* *H.Br.* V.-c. 17. Headley, 1927. var. *ANGUSTIFOLIUM* Leers. V.-c. 17. Walton Downs, 1926. See C. E. Britton, *J. Bot.*, 27, 243-251 (1934).

× *VERUM* = *G. OCHROLEUCUM* Schweigg & Koerte. V.-c. 17. Headley, 1940, *A.E.E.*; *Hb.E.C.M.*

G. ERECTUM Huds. *Erect Hedge Bedstraw*. Downs, pastures, dry slopes, railway banks and grassy waste places. Not common. V.-c. 16. Goddington, S.E. of Orpington; Downe; *W.W.*; very fine, 1946; *F.R.* Green Street Green, near Farnborough, 1930, *J.E.L.*; *Hb.L.* S. boundary of Mount's Wood, Swanscombe, in three places, 1952; *H.M.P.* V.-c. 17. Caterham Valley, 1923; *R.W.R.* Colley Hill, Reigate; Buckland Hills, 1917, *E.B.B.*; *Hb.B.* fide *C.E.S.* Colley Hill, 1932; between Walton-on-the-Hill and No-Home Farm, Headley, 1941; near the railway, Kingswood, 1950, *J.E.L.*; *Hb.L.* Lucerne field, Epsom College, 1939, *A.E.E.*; *Hb.E.C.M.* V.-c. 18. Railway bank, Chingford, 1906, *C.N.*; Stifford, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Waste ground near Brent Reservoir, 1948; *R.D.M.* Hounslow Heath, 1949; Harefield, 1950; *D.H.K.*

G. HERCYNICUM Weigel, *G. SAXATILE* auct., non. L. *Heath Bedstraw*. Heaths, moors, grassy places and woods on acid soils. Common in all the v.-cc.

G. PUMILUM Murr. *Slender Bedstraw*. Grassy calcareous slopes. Very local. V.-c. 17. Colley Hill, Reigate, 1917, *E.B.B.*; *Hb.B.* fide

C.E.S.: 1942, *J.E.L.*; *Hb.L.* Worm's Heath, very local, 1921, *R.W.R.*; *Hb.R.*; 1925; *J.E.L.*; *Hb.L.*

G. ULIGINOSUM L. *Bog or Fen Bedstraw*. Bogs and marshes. Local. V.-c. 16. Meadows by river Darent, Brasted, 1945; *F.R.* V.-c. 17. Limpsfield, local, 1921; *R.W.R.* Wimbledon Common, 1923; *H.J.B.*; apparently confined to Farm Bog, 1937; *C.A.*; 1941; *D.H.K.* Great Bookham Common, 1927; *E.B.B.*; 1949; *E.B.Ba.*; 1950; *D.H.K.* Arbrook Common, 1926, *D.G.C.*; *Hb.L.* V.-c. 18. Coopersale Common, 1909; Epping Forest, between Waltham End and Woodford, 1923; *R.W.R.* Cranham, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 19. Epping Lower Forest, 1951; *R.M.P.* V.-c. 20. Bricket Wood, 1933; *R.W.R.* V.-c. 21. Bog near Harrow Weald Common, 1940; Finchley Common, scarce, 1946; *D.H.K.* V.-c. 24. Black Park, 1950; *D.H.K.*

G. PALUSTRE L. *Marsh Bedstraw*. Marshes, ditches, stream and pond sides. Common throughout the area.

G. VERUM L. *Lady's Bedstraw*. Grassy places. Frequent in all the v.-cc.

G. TRICORNE Stokes. *Rough Corn Bedstraw*. Cornfields and cultivated ground. Rare and sporadic. V.-c. 16. Chislehurst, casual; N. of Downe; W.IV. Swanley, 1883, *F.J.H.*; *Hb.Mus.Brit.* V.-c. 17. Cornfield above Betchworth, 1899, *L.B.H.*; *Hb.H.* Mizen's Market Garden, Ewell, 1939, *A.E.E.*; *Hb.E.C.M.* V.-c. 18. Stapleford Tawney, 1907; Hart Street, Romford, 1913; *P.H.C.* V.-c. 21. Stoke Newington, 1871, *F.J.H.*; *Hb.Mus.Brit.* Highgate, 1887; Finchley, 1908; Yiewsley, 1910 and 1913; Hackney Marshes, 1912-13; *J.E.C.*

G. APARINE L. *Goosegrass, Cleavers*. Hedges, woods, thickets and grassy waste places. Common throughout the area.

G. SPURIUM L. var. *VAILLANTII* (DC.) A. R. Clapham. Arable ground. Local and rare. V.-c. 17. Allotments, Pebble Hill, Limpsfield, four plants, 1924, *R.W.R.*; *Hb.R.* teste *C.E.S.*; reappeared in 1925 and 1930; *R.W.R.* Epsom College, 1939; Mizen's Market Garden, Ewell, 1944, *A.E.E.*; *Hb.E.C.M.* det. *C.E.B.* Near Kingswood railway station, 1941, *A.E.E.*; *Hb.E.C.M.* det. *E.C.W.*

G. PARISIENSE L. spp. *ANGLICUM* (Huds.) Clapham, *G. ANGLICUM* Huds. *Wall Bedstraw*. Walls and roadbanks. Very local. V.-c. 16. Farningham, 1931 and 1937, *J.E.L.*; *Hb.L.*; 1939; *A.B.J.*; 1945; *F.R.*—(First recorded here by William Hudson in 1778 (*Fl. Anglica*, Ed. 2, 69). Wall of Chelsfield Churchyard; *C.W.**; 1947, *J.E.L.*; *Hb.L.*

G. CRUCIATA (L.) Scop. *Crosswort*. Open woodlands, scrub, hedgebanks, waysides and pastures. Locally common, especially on calcareous soils. V.-c. 16. Frequent on the chalk. V.-c. 17. Common on the

*West, C.

chalk. V.-c. 20. North Mimms, *L.B.H.*; *Hb.H.* Colney Heath, 1950; *S.U.M.* V.-c. 21. South Mimms, 1910, *P.H.C.*; *Hb.L.N.H.S.*; 1914; *J.E.C.*; 1950; *D.H.K.* Laleham; near Walton Bridge; *D.H.K.* W. of Shepperton, 1945; *B.W.*

ASPERULA L.

A. ODORATA L. *Sweet Woodruff*. Woods. Locally abundant, especially on the chalk. V.-c. 16. Frequent on calcareous soils. Farningham Wood, 1950; *E.B.Ba.* V.-c. 17. Common on the chalk. V.-c. 20. Elstree; *L.B.H.* Broxbourne; Napsbury; *P.H.C.* Finch's Avenue; Bishop's Wood, near Batchworth; *C.S.N.* Near Chorley Wood, 1921; *L.J.T.* Rickmansworth, 1942; *J.B.* V.-c. 21. Mimmshall Wood; *L.B.H.*; 1950; Harefield; Springwell; Stanmore Common; Scratch Wood; Hadley Common, 1939-52; *D.H.K.*

A. CYNANCHICA L. *Squinancy Wort*. Dry calcareous pastures and downs. Locally abundant. V.-c. 16. Downs above Eynsford, 1928; *R.W.R.*; 1946; *F.R.*; 1952; *H.M.P.* Shoreham to Romney Street and Otford, 1933; *P.H.C.* Downe; W. and E. of Shoreham; Polhill; Biggin Hill, 1946; *F.R.* V.-c. 17. Box Hill, 1884; *J.E.C.*; 1916; *L.J.T.*; 1941, *J.E.L.*; *Hb.L.*; 1947; *M.B.G.**. Headley Lane, 1905; *J.E.C.* Near Betchworth, 1899, *L.B.H.*; *Hb.H.* Colley Hill; Reigate Hill; Headley Heath, 1917; *E.B.B.* Mickleham Downs, 1916; *L.J.T.* Fetcham Downs, 1927; *H.J.B.* Downs above Oxted, local, 1917; Riddlesdown, 1930; Chipstead, 1929; *R.W.R.*; 1947; *E.B.Ba.* Park Downs, Bantstead, 1927, *E.C.W.*; *Hb.L.*

A. ARVENSIS L. Alien. Europe. V.-c. 18. Monkham's Estate, Woodford, 1907, *C.N.*; *Hb.L.N.H.S.* Dagenham Dock, 1939; *P.H.C.* V.-c. 21. East Finchley, 1908; Hackney Marshes, 1914 and 1918; *J.E.C.* Plants with white flowers are reported from v.-c. 21. East Finchley, 1908; *J.E.C.*

A. TINCTORIA L. Alien. S. Europe. V.-c. 17. Bomb-crater, Brockham Hill, 1948, *J.E.L.*; *Hb.L.*; 1949; *J.E.L.*

SHERARDIA L.

S. ARVENSIS L. *Field Madder*. Arable fields and waste places. Rather common in all the v.-cc.

VALERIANACEAE

VALERIANA L.

V. OFFICINALIS L. *Valerian*. Stream and pond sides, marshes and damp grassy places, but also in dry habitats. Rather common in all the v.-cc. except 18 where it is so far unrecorded. The extreme form (*V. MIKANII* Syme) is reported from v.-c. 16. E. of Downe; *W.W.* Hedgebank N. of Cudham, 1947; hedgebanks S. of Green Street Green, near Farnborough; *F.R.*

*Gerrans, Miss M. B.

V. DIOICA L. *Marsh or Small Valerian*. Marshy meadows, bogs and railway banks. Local. V.-c. 16. Holwood Park; near Shoreham; W.W. Railway embankment near Greenhithe, very abundant, *F.J.H.*; *Fl.Kent*, 182. Near the railway, Stone, 1948-51; *H.M.P.* Meadow near Sevenoaks, 1950; *F.R.* V.-c. 17. Marsh by Watermeads, Mitcham, 1925, *J.E.L.*; marsh by Dungate's Farm, Reigate Heath, 1934, *E.C.W.*; *Hb.L.* V.-c. 18. Coopersale Common, 1909; *R.W.R.*; 1927, *B.T.W.*; *Hb.L.N.H.S.*; 1952; *B.T.W. & J.E.L.* Epping Forest, near Epping, *R.W.R.*; *Tr.L.N.H.S.*, 1915, 45 (1916); 1927; *R.W.R.* V.-c. 20. Panslanger Park, 1950; *S.C.M.* V.-c. 21. Denham Lock, 1912; Yiewsley, 1912-19; *J.E.C.* Harefield, 1927; *L.J.T.* Harefield Moor, 1946; *D.H.K.*

CENTRANTHUS DC.

C. RUBER (L.) DC. *Red Valerian*. Alien. Europe. N. Africa and Asia Minor. Naturalised on railway cuttings, chalkpits, waste ground and old walls. Locally abundant. V.-c. 16. In the greatest abundance on railway cuttings, sides of pits and spoil heaps over the northern part of Kent within the area. V.-c. 17. Railway bank near Carshalton, 1935; *P.H.C.* Banstead, 1938, *P.H.C.*; *Hb.L.N.H.S.* Railway cutting near Sutton, 1936; *R.S.R.F.* V.-c. 18. Railway cutting, Purfleet, 1935; *P.H.C.* V.-c. 21. Old walls, Isleworth, West Drayton, Sunbury, Uxbridge and Northwood; roadbank near Horsenden Hill; Ealing Common, a few plants only, 1939-52; *D.H.K.*

VALERIANELLA Mill.

V. LOCUSTA (L.) Betsche, *V. OLITORIA* Poll. *Lamb's Lettuce*, *Corn Salad*. Arable land and hedgebanks. Rather common. V.-c. 16. Chalkpit, Dartford, 1886, *F.J.H.*; *Hb.Mus.Brit.*; 1938, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 17. Oxted, local, 1921; *R.W.R.* Epsom, 1935; Headley Lane, 1936; Chaldon, 1936; *P.H.C.* Riverside, Hurst Park and Ham, 1945; *B.W.* Allotments, Limsfield, 1937, *R.W.R.*; *Hb.L.N.H.S.* Near Betchworth railway station, 1946; *J.E.L.* V.-c. 18. Noak Hill, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. West Hyde; *P.H.C.* Near Watford; *C.S.N.* Near St. Albans, 1909, *P.H.C.*; *Hb.L.N.H.S.* Hertford, 1950; *S.C.M.* V.-c. 21. Harefield, 1900, *F.E.M.*; *Hb.L.N.H.S.*; abundant, 1923; *L.J.T.*; 1952; *D.H.K.* Towing path, Penton Hook, 1905, *C.S.N.*; *Hb.L.N.H.S.* Towing path, Hampton Court, 1926, *J.E.L.*; *Hb.L.*; abundant, 1938-52; *D.H.K.* West Drayton, 1909; *P.H.C.*; 1950; *D.H.K.* Railway banks, Chiswick, 1939-52; *D.H.K.* Syon Park, 1946; *A.B.J. & D.H.K.* V.-c. 24. Denham, 1934; *P.H.C.*; 1950; *D.H.K.* Colnbrook; Iver, 1909, *P.H.C.*; *Hb.L.N.H.S.* An almost prostrate form with pubescent fruits (var. *LASIOCARPA* (Reichb.) Airy-Shaw) is reported from v.-c. 17. Fields by Banstead Downs, 1926, *E.C.W.*; *Hb.L.*—see *Wats. B.E.C. 1926-27 Rep.*, 384 (1927).

V. ERIOCARPA Desv. Alien. Mediterranean region. V.-c. 21. Waste ground, Ealing, 1950, *L.M.P.S.*; *Hb.Mus.Brit.* det. *E.B.Ba.*

V. DENTATA (L.) Poll. Cornfields and cultivated ground. Not common. V.-c. 17. Cornfield beyond Croham Hurst, 1899, *L.B.H.*; *Hb.H.* Near Bookham Common, 1923; *E.B.B.* Fallow field near Betchworth railway station, 1950; *B.W.* Near Headley, 1927 and 1929; *J.E.L.*; *Hb.L.* Pebblecombe Hill, 1952; *J.E.L.* More frequent in Surrey than these records suggest; *J.E.L.* V.-c. 21. Garden weed, Hendon, 1910, *P.H.C.*; *Hb.L.N.H.S.* Harefield, 1912; *J.E.C.*

V. CARINATA Lois. Cultivated ground, banks and old walls. Not common. V.-c. 17. Wall near Thorpe churchyard, 1919, *E.B.B.*; *Hb.B.* Limpsfield, 1925; *E.B.B.* Near Betchworth railway station, 1946; *J.E.L.* V.-c. 21. Harefield; railway bank between Uxbridge and West Drayton, 1944; *D.H.K.*

[*V. RIMOSA* Bast., *V. AURICULA* DC. Has not been reported from within the Area by our members, but its discovery in a cornfield near Sarratt, Herts., just over the boundary, by Mr. R. A. Graham suggests that it may well occur in the London Area.]

DIPSACACEAE

DIPSACUS L.

D. FULLONUM L., *D. SYLVESTRIS* Huds. *Wild Teasel*. Copses, streamsides, roadbanks and waste ground. Common throughout the area. *D. SATIVUS* (L.) Scholler, of hortical origin, is rare but has been reported from v.-c. 17. Earlswood cinder-tip, 1952; *B.M.C.M.* V.-c. 18. Whitehall Plain, Chingford, one plant, 1935; *J.R.* Dagenham Dock, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Yiewsley, 1908; West Drayton, 1908, 1910-11 and 1913-17; *J.E.C.* V.-c. 24. Iver Grove, 1908, *P.H.C.*; *Hb.L.N.H.S.* Near Iver, 1914-16; Uxbridge, 1915; *J.E.C.* Plants with white flowers are reported from v.-c. 24. Iver, 1911; *J.E.C.*

D. PILOSUS L. *Small Teasel*. Damp woods, hedgebanks and stream-sides. Local. V.-c. 17. Field by 'The Bogs', Oxted, 1931; *J.C.R.* In various places by the river Mole, e.g., near Norbury Park, 1934; *P.H.C.* In Norbury Park, 1944, *J.E.L.*; *Hb.L.* S.W. of Cobham, 1942; *B.W.* Near By-pass, Leatherhead, 1950; *J.E.S.D.* V.-c. 18. Stanstead Street, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Canal path N. of Uxbridge, 1913; *L.J.T.*; 1918; *J.E.C.*; 1950; *D.H.K.* By canal N. of Denham Lock, 1918; *J.E.C.*; 1923; *L.J.T.*; 1952; *D.H.K.* Cowley, 1913-15; *J.E.C.* Chalkpit, Springwell, two plants, 1944; since destroyed; *D.H.K.*

CEPHALARIA Schrad.

C. SYRIACA (L.) Roem. & Schult., *LEPICEPHALUS SYRIACUS* Lag. Alien. Mediterranean region. V.-c. 21. Canal side, Uxbridge, 1905; *C.B.G.*

SCABIOSA L.

S. COLUMBARIA L. *Small Scabious*. Dry calcareous pastures, banks and downs. V.-cc. 16 and 17. Locally abundant on the chalk. V.-c. 21. Thames bank, Hampton Court, c. 1939; *D.H.K.*

SUCCISA Moench.

S. PRATENSIS Moench, *SCABIOSA SUCCISA* L. *Devil's-bit Scabious*. Marshes, meadows, railway banks and woods. Common throughout the area.

KNAUTIA L.

K. ARVENSIS (L.) Coult., *SCABIOSA ARVENSIS* L. *Field Scabious*. Dry grassy fields, downs and railway banks. Rather common. V.-c. 16. Frequent on the chalk. V.-c. 17. Common on the chalk. Near Thorpe, 1917; *E.B.B.* Epsom to Chessington; Norwood, 1933; *P.H.C.* V.-c. 18. Orsett; Greensted; Shenfield; *P.H.C.* V.-c. 20. Chandlers Cross; *C.S.N.* North Mimms; Essendon; Wormley; *P.H.C.* Near Radlett, 1923; *L.J.T.* Broxbourne, 1909, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Harlington; Potters Bar; *P.H.C.*; 1950; *D.H.K.* Cranford; Harefield; *C.S.N.*; 1952; Springwell; South Mimms; near Uxbridge; Northwood; near West Drayton; Stanwell Moor; Sipson; Harmondsworth; Colnbrook; Yeoveney; Poyle; Staines; Sunbury; Shepperton; Hanworth; Feltham; Hounslow Heath; Neasden, 1932-52; *D.H.K.* Hanger Hill, Ealing, 1946; *F.P.D.B.* & *D.H.K.* V.-c. 24. Near Horton, 1903, *C.S.N.*; *Hb.L.N.H.S.* Near Langley; *L.B.H.* Plants with entire leaves (var. *INTEGRIFOLIA* Coulter) are reported from v.-c. 17. Near Owl's Wood, Warlingham, 1941; Colley Hill, Reigate, 1927, *J.E.L.*; *Hb.L.*

COMPOSITAE

EUPATORIUM L.

E. CANNABINUM L. *Hemp Agrimony*. Marshes, streamsides and wet woods. Rather common. V.-c. 16. Westerham; Springhead, near Southfleet, 1919; *P.H.C.* Crayford, 1933; Wilmington, 1938, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 17. Weybridge; Kew; *P.H.C.* By river Wandle, Merton, 1919; *L.J.T.* Near Oxted, 1919; above Limpsfield, 1921; *R.W.R.* V.-c. 19. Roydon, 1923, *L.J.T.* Waltham Abbey, 1952; *R.M.P.* V.-c. 20. West Hyde; *P.H.C.* Broxbourne, 1952; *R.M.P.* Watford; Rickmansworth; *D.H.K.* V.-c. 21. Enfield; *P.H.C.* Scattered along the Colne valley from Springwell to Staines; Staines and Stanwell Moors; Thames side in several places between Staines and Isleworth, 1939-52; *D.H.K.* Harlington; *P.H.C.* Riverside, Chiswick, 1947; *E.B.Ba.* V.-c. 24. Colnbrook, 1909, *P.H.C.*; *Hb.L.N.H.S.* Denham; *P.H.C.*

SOLIDAGO L.

Dr. S. F. Blake of the United States Dept. of Agriculture has kindly named, or commented upon, a number of specimens in *Hb.K.*

S. VIRGAUREA L. *Golden-rod*. Dry woods, heaths, railway banks and hedgebanks. Locally plentiful, but absent from chalk soils. V.-c. 16. Near Chelsfield, 1913; *L.J.T.* Dartford Heath, 1919; *E.B.B.* Shooters Hill, 1920; Hayes Common, 1936; Shoreham, 1933; Sundridge; Chevening, 1930; *P.H.C.* Railway bank near Forest Hill, 1927;

Westerham, 1927; *R.W.R.*; 1938; *P.H.C.* Orpington, 1948; *E.B.Ba.* V.-c. 17. Oxshott Heath; Esher, 1915; *E.B.B.* Limpsfield, 1917; Shirley, 1922; *R.W.R.* Near Walton-on-the-Hill, 1917; *E.B.B.* Headley; Chipstead, 1930; Warlingham, 1935; *P.H.C.* Worm's Heath, 1925; Chipstead Valley, 1941, *J.E.L.*; *Hb.L.* Putney Heath, 1934; *C.A.* Coombe Warren, Kingston, 1945; *B.W.* V.-c. 18. Near Brentwood, 1900; *R.W.R.*; 1930; *L.J.T.* V.-c. 20. Hoddesden; *P.H.C.* Broxbourne, 1952; *R.M.P.* V.-c. 21. Hampstead Heath, 1883; *J.E.C.* Bishops Wood, 1902; Highgate Wood, *C.S.N.*; *Hb.L.N.H.S.* Coldfall Wood, Highgate; *E.M.D.* Queen's Wood, Highgate, 1947, *D.H.K.*; *Hb.K.* Harrow Weald Common; *A.B.J.* & *C.B.G.* Park Wood, Ruislip; *B.W.* V.-c. 24. Fulmer, 1912, *P.H.C.*; *Hb.L.N.H.S.*; 1940; *D.H.K.*

S. GRAMINIFOLIA (L.) Salisb., *S. LANCEOLATA* L. p.p., *EUTHAMIA GRAMINIFOLIA* Nutt. *Stems paniculately much branched, rarely simple, glabrous or roughish pubescent. Leaves numerous, linear-lanceolate, acuminate or acute at each end, 3-5 nerved. Heads sessile in capitate clusters, arranged in a flat topped compound corymb; involucre ovoid-campanulate to sub-cylindric, its yellowish bracts oblong to oblong-lanceolate, slightly viscid; rays 12-20; disk flowers 8-12. The species superficially resembles LINOSYRIS VULGARIS DC. (ASTER LINOSYRIS (L.) Bernh.). Alien. N. America. Garden outcast, naturalised on waste ground. Not common. V.-c. 17. Disused gravel pit near Caterham, 1917, *A.D.I.**; *Hb.D.**

S. GIGANTEA Ait., *S. SEROTINA* Ait. var. *GIGANTEA* (Ait.) A. Gray. *Stems smooth and often glaucous; leaves glabrous on both sides, but pilose on the veins beneath, lanceolate, attenuate-acuminate, serrate; panicle pyramidal, of numerous recurved racemes, peduncles pubescent or villous. Heads large, rays exserted. Alien. N. America. Garden outcast. Naturalised on waste ground, railway banks and roadsides, and by stream and riversides. Not common. V.-c. 21. Waste ground, Hanwell, 1949, *D.H.K.*; *Hb.K.* det. *S.F.B.†*. The var *LEIOPHYLLA* (Fern.) Fern., *S. SEROTINA* Ait., differs in the veins on the underside of the leaf being glabrous, and has been reported from v.-c. 16. Rubbish-tip, Wilmington, 1938, *P.H.C.*; *Hb.L.N.H.S.* det. *D.H.K.* V.-c. 17. By the river Mole near Mickleham, 1940, *H.W.P.*; *Hb.Mus.Brit.* det. *D.H.K.* V.-c. 18. Dagenham, 1950; *D.H.K.* V.-c. 21. Waste ground, Hanwell, 1949; gravel pit, East Bedfont, 1946, *D.H.K.*; *Hb.K.* det. *S.F.B.* Waste ground, Yiewsley, 1951, *D.McC.*, *J.E.L.* & *D.H.K.*; *Hb.K.* det. *D.H.K.* Brent Reservoir, Hendon, 1952; *R.A.G.* & *D.H.K.* Bombed site, Mile End Road, E., 1952, *A.H.§*; *Hb.Mus.Brit.**

*Ingilby, Hon. Mrs. A. D

†Blake, S. F.

§Henson, A.

S. ALTISSIMA L., *S. CANADENSIS* auct. angl. p.p. Stems greyish, closely puberulent or shortly pilose, leaves numerous, crowded, lanceolate, long acuminate, sub-entire or remotely serrate, with close pubescence beneath, scabrous above, triple-nerved; panicle pyramidal, its numerous recurved-spreading branches cinereous; heads slender, 12-18 flowered; involucre 3.2-5 mm. high; disk corollas 3-4 mm. long. A very variable species. Alien. N. America. Garden outcast. Naturalised on waste ground, railway banks, rubbish-tips and grassy places, also by streams and riversides. Common. Recorded from all the v.-cc. except 19.

BELLIS L.

B. PERENNIS L. Daisy. Grassy places. Abundant throughout the area.

CALOTIS R.Br.

C. CUNEIFOLIA R.Br. Alien. Australia. V.-c. 16. Hextable, introduced with "shoddy", 1948, *D.McC.*; *Hb.L.*

C. HISPIDULA F. v. Muell. Alien. Australia. V.-c. 16. Hextable, introduced with "shoddy", 1948, *D.McC.*; *Hb.L.*

CALLISTEPHUS Cass.

C. CHINENSIS (L.) Nees, *CALLISTEMMA HORTENSE* Cass. Alien. China. Garden outcast. V.-c. 21. Rubbish-tip, Dawley, 1948; *D.H.K.*

ASTER L.

The N. American species naturalised in Britain are much misunderstood; they belong to a critical group and the nomenclature and synonymy is in confusion. There is a great need for a competent taxonomist to undertake the study of this complicated and polymorphic genus. In view of this it will be realised that many of the following records doubtless need revision. Those interested in the group should consult M. L. Fernald's edition of Gray's *Manual of Botany*.

A. LANCEOLATUS Willd., *A. LAMARCKIANUS* auct., ? Nees, *A. PANICULATUS* auct. angl. *Michaelmas Daisy*. Alien. N. America. Garden escape. Naturalised on waste ground and railway banks, and by streamsides. Probably rather common. V.-c. 17. Ashted Common, 1948; *J.B.E.* V.-c. 21. Gravel pit, East Bedfont, 1946, *J.P.M.B.* & *D.H.K.*; *Hb.K.* det. *J.P.M.B.* Near Springwell; Yiewsley; Hanwell; Brentford; Greenford; Northolt; Finchley Common, 1948-52; *D.H.K.*

A. LONGIFOLIUS Lam. Alien. N. America. Garden escape. Naturalised on waste ground. Not common. V.-c. 17. Ilimpsfield Common, 1920; *R.W.R.*

A. NOVII-BELGII L. *Michaelmas Daisy*. Alien. A. America. Widely naturalised on waste ground, rubbish-tips, railway banks and by stream and riversides. Probably common. V.-c. 16. Near Bromley,

1918; *L.J.T.* V.-c. 17. Tadworth, 1937; *P.H.C.* det. *Kew.* Riverside, Kew to Mortlake, 1950; *D.H.K.* V.-c. 18. Dagenham; *D.H.K.* V.-c. 21. Gravel pit, East Bedfont, 1946; *J.P.M.B.*, *J.E.W.* & *D.H.K.* Hampton Court; Yiewsley; Roxeth; Greenford; Hanwell; Isleworth; Twickenham; *D.H.K.*

A. MACROPHYLLUS L. Alien. N. America. Garden escape. Naturalised in a wood. Not common. V.-c. 16. Park Wood, Swanley, naturalised and increasing, 1946, *F.R.B.*; *Hb.Kew.*

A. TRADESCANTI L. Alien. N. America. Garden escape. Naturalised on waste ground. Probably not common. V.-c. 17. Tadworth, 1937; *P.H.C.* det. *Kew.*

A. SPECTABILIS Ait. Alien. N. America. Garden escape. Naturalised in grassy places. Probably not common. V.-c. 16. Hayes Common, a large patch far from houses, 1948; *J.B.M.* det. *A.M.*

A. NOVAE-ANGLIAE L. Alien. N. America. Garden escape. Naturalised on waste ground and rubbish-tips, and by streamsides. Not common. V.-c. 17. Tadworth, 1937; *P.H.C.* det. *Kew.* V.-c. 21. Yiewsley; Thames bank between Hampton Court and Kingston Bridge; Harrow Weald; Finchley Common; Greenford; Yeading, 1942-52; *D.H.K.*

A. TRIPOLIUM L. *Sea Aster*. Salt marshes and waste ground near the tidal estuary. Locally abundant. V.-c. 16. Near Woolwich; *P.H.C.* Swanscombe Marshes, 1919, *P.H.C.*; *Hb.L.N.H.S.* Riverbank near Crossness, 1927; *H.J.B.* Sea-wall near Littlebrook, 1930; *R.W.R.* Stone and Erith Marshes; *R.A.B.* Near Crayford Ness, Erith, 1951; *J.E.L.*, *B.W.* & *J.C.C.* Abbey Wood Marshes, abundant, 1952; *L.N.H.S. Excursion.* V.-c. 18. River Roding near Ilford; *R.W.R.* West Thurrock Marshes, 1904; *C.S.N.* Grays, 1909, *P.H.C.*; *Hb.L.N.H.S.* Near Eastbury, Barking, 1919; *E.B.B.* Dagenham Dock; *J.E.C.* Between Grays and Rainham, plentiful, 1949; *B.W.* & *J.E.L.* Rubbish-tip, East Ham, abundant, 1952; *B.W.* V.-c. 21. Hackney Marshes, 1909 and 1912; *J.E.C.* Marshy field at foot of rubbish-tip near Yeading, abundant, 1949; *R.A.B.* Still there 1952, well naturalised but scarcely native; *D.H.K.* The var. *DISCOIDEUS* Reichb. is well marked on West Thurrock Marshes (V.-c. 18), and is probably not rare. Plants with white ligules were found in v.-c. 18. Creekmouth, near Barking, 1951; *J.C.C.* & *J.E.L.*

ERIGERON L.

E. ACER L. *Blue Fleabane*. Dry grassy places, banks and walls on calcareous and sandy soils. Locally abundant. V.-c. 16. Chislehurst; Southborough; *W.W.* Swanscombe Marshes, 1938, *P.H.C.*; *Hb.L.N.H.S.* Dartford Heath; *E.B.B.* Crayford, 1910; *J.E.C.* Stone; Dartford; Darenth, 1948-51; *H.M.P.* Orpington, 1948; *E.B.Ba.* V.-c. 17. A

scarce plant in N. Surrey, away from the chalk downs, *E.C.W.*; *B.E.C.* 1938 *Rep.*, 43 (1939). By Leatherhead railway station, 1918; Box Hill; *E.B.B.* Chipstead, 1929; *R.W.R.* Epsom Downs, 1930; Tadworth, 1937; *P.H.C.* Croham Hurst, 1899, *L.B.H.*; *Hb.H.* Above Godstone, 1931; *C.E.L.* Downs above Oxted, local, 1917; between Limpsfield and Moorhouse, 1925; *R.W.R.* Walls of Nonsuch Park, Cheam; *E.C.W.* Riverside, Teddington Lock, *B.W.*; *Hb.W.* Between Richmond and Kew, 1942; gravel pits, Ham, 1943-45; Kingston Vale, one plant, 1946; *B.W.* V.-c. 18. Grays, 1908; *P.H.C.* West Thurrock; Purfleet, abundant, 1911; *C.S.N.* Stifford, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Chandlers Cross, 1907, *C.S.N.*; *Hb.L.N.H.S.* Croxley Moor; *C.S.N.* Hoddesden, 1909; Rickmansworth, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Harlington, 1910; North Finchley, 1915 and 1918; Yiewsley, 1910 and 1924; Northwood, 1914; *J.E.C.* Harefield, 1922; *J.E.C.*; 1952; Springwell; West Drayton; Staines; Laleham; East Bedfont; Feltham; Ealing Common, 1939-52; *D.H.K.* Hounslow Heath; Chiswick, 1944; *B.W.* V.-c. 24. Near Iver, 1905, *C.S.N.*; *Hb.L.N.H.S.*

× CANADENSIS = *E. HÜLSENII* A. Kern. V.-c. 16. Farningham Wood borders, *F.R.*; *B.E.C.* 1945 *Rep.*, 59 (1946). V.-c. 17. Roadside bank, Burdon Lane, Sutton, 1950; *R.A.B.*

E. CANADENSIS L. *Canadian Fleabane*. Alien. N. America. Naturalised on waste ground, bombed sites, waysides, railway tracks, walls and cultivated ground on light soils. Common in all the v.-cc.

E. BONARIENSIS L. Alien. S. America. V.-c. 21. Rubbish-tip, Greenford, 1952, *B.M.C.M.*; *Hb.Mus.Brit.* det. A.M.

E. ANNUUS (L.) Pers. Alien. N. America. V.-c. 16. Erith, *St.J.M.*; *B.E.C.* 1927 *Rep.*, 399 (1928) det. A. Thellung.

E. STRIGOSUS Willd. var. *SEPTENTRIONALIS* (Fern. & Weig.) Fern. Alien. N. America. V.-c. 21. Waste ground, Chiswick, 1945-47, *B.W.*; *Hb.W.* det N.Y.S.; 1947, *D.H.K.*; *Hb.L.*

FILAGO L.

F. SPATHULATA C. Presl. *Spathulate Cudweed*. Sandy and chalky fields and waysides. Very local. V.-c. 16. Dartford, *F.J.H.*; *Fl. Kent*, 189. V.-c. 17. Near Chipstead, 1950; *B.M.C.M.* V.-c. 18. Grays, 1913, *P.H.C.*; *Hb.L.N.H.S.*

F. APICULATA G. E. Sm. *Red-tipped Cudweed*. Sandy heaths and banks. Very local, and rare. V.-c. 16. Farningham Wood border, *F.R.*; *B.E.C.* 1945 *Rep.*, 60 (1946). V.-c. 17. Little Heath, near Oxshott, a few plants only, 1915; *E.B.B.* conf. *C.E.S.*

F. MINIMA (Sm.) Pers. *Slender Cudweed*. Heaths, banks and bare places on sandy and gravelly soils. Locally abundant. V.-c. 16. Farningham Wood border, 1945; *F.R.*; 1948-52; Dartford Heath; Darenth Wood, 1948-51; Mount's Wood, 1952; *H.M.P.* Wood W. of Sutton-at-Hone, 1951; *F.R.* Hayes Common, 1951; *J.D.L.* V.-c. 17. Little

Heath, 1915; *E.B.B.* Near Oxted, local. 1917; *R.W.R.* Oxshott, 1943; *P.H.C.* Worm's Heath, 1927, *J.E.L.*; *Hb.L.* Limpsfield Common, *R.W.R.*; *Lond. Nat.*, 18, 68 (1939). Near Cobham, 1950; *D.H.K.* V.-c. 18. Purfleet, 1935; *P.H.C.* V.-c. 20. Broxbourne, 1909; Rye House, 1910; Rickmansworth, 1912, *P.H.C.*; *Hb.L.N.H.S.* Near Essendon, 1920; *P.H.C.* V.-c. 21. Gravel pit near Harefield, 1912, *P.H.C.*; *Hb.L.N.H.S.*; 1944; near Ickenham; Hampton Court; Bushy Park; near Hounslow Heath, 1946-52; *D.H.K.* V.-c. 24. Gravel pit. Alderbourne Farm, Fulmer, 1924; *E.B.B.*

F. GERMANICA (L.) L. *Common Cudweed*. Heaths, dry places and waysides on sandy soils. Not common. V.-c. 16. Stone Village, 1948; *H.M.P.* V.-c. 17. Near Oxted, 1917; Limpsfield, 1931; *R.W.R.* Chipstead Valley, 1923, *J.E.L.*; *Hb.L.* V.-c. 20. West Hyde; *P.H.C.* Broxbourne; *L.B.H.* Haileybury, 1909, *P.H.C.*; *Hb.L.N.H.S.* Radlett, 1941; *J.B.* Panshanger, 1952; *T.G.C.* & *D.H.K.* V.-c. 21. Palmers Green, 1905; *P.H.C.* Staines; Laleham; *D.H.K.*

[ANTENNARIA Gaertn.

A. DIOICA (L.) Gaertn. *Cat's-foot*. This attractive plant has not been reported from the Area by our members: there are however old records from v.-c. 17. Banstead Downs, and it is just possible that a sm^al patch may still linger there and be refound.]

ANAPHALIS DC.

A. MARGARITACEA (L.) Benth., *GNAPHALIUM MARGARITACEUM* L., *ANTENNARIA MARGARITACEA* S. F. Gray. *Pearly Everlasting*. Alien. N. America. Garden escape. V.-c. 17. Stony bank near Coulsdon; *T.A.D.*

GNAPHALIUM L.

G. ULIGINOSUM L. *Marsh Cudweed*. Damp places, heaths, waste ground and waysides. Common throughout the area.

G. SYLVATICUM L. *Wood Cudweed*. Dry open woods, heaths, dry pastures and waysides, with a preference for acid soils. Local. V.-c. 16. Wood near Swanley, 1883; gravel pit, Bexley, 1875, *F.J.H.*; *Hb.Mus.Brit.* Chislehurst; Addington Woods; *W.W.* Abbey Wood, 1927; *H.J.B.* Farningham and Hollow's Woods; *F.R.* Edge of Joyden's Wood, abundant, 1948; *R.A.B.* V.-c. 17. Near Limpsfield, rare, 1917; woods above Titsey, rare, 1919; *R.W.R.* Park Down, Banstead; *P.H.C.* Burgh Heath, 1941; *J.B.* Chipstead Valley, on chalk, 1941, *J.E.L.*; *Hb.L.* V.-c. 18. Near Ambresbury Banks, Epping Forest; *L.B.H.* Navestock, 1933; *L.J.T.* V.-c. 21. Harrow Weald Common, 1898, *C.S.N.*; *Hb.L.N.H.S.* Air-raid shelter, Hyde Park, 1945, *L.G.P.* & *J.E.L.*; *Hb.L.* V.-c. 24. Gravel pit, Alderbourne Farm, Fulmer, 1924; *E.B.B.* Black Park, 1931; *J.C.R.*

INULA L.

I. HELENIUM L. *Elecampane*. Alien. Central Asia. Escape from cultivation. Naturalised in fields and waste places, and on railway

banks and by streamsides. Not common. V.-c. 17. By stream near Chessington, 1928, *J.E.L.*; *Hb.L.*; 1933, *P.H.C.*; *Hb.L.N.H.S.*; near Park Farm, two plants, 1946, *C.L.C.*; *Lond. Nat.*, 26, 75 (1947). Ashstead Park, 1939; near Kemp's Farm, Buckland, 1939, *A.E.E.*; *Hb.E.C.M.*; 1949, *J.E.L.*; *Hb.L.* Bomb-crater, Brockham Hill, 1948, *J.E.L.*; *Hb.L.* V.-c. 21. Northwood, 1909; *C.B.G.*; 1914-15; *J.E.C.* Railway bank and nearby roadside, Winchmore Hill, 1950; *B.W.*

I. CONYZA DC., I. SQUARROSA (L.) Bernh., non L. *Ploughman's Spikenard*. Open woods, thickets and dry slopes, almost confined to the chalk. Locally common. V.-c. 16. Common on calcareous soils. V.-c. 17. Frequent on the chalk. V.-c. 18. Grays, 1908; *P.H.C.* Thurrocks, 1909, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Croxley Mills, 1907, *C.S.N.*; *Hb.L.N.H.S.* Rickmansworth, 1941; *J.B.* V.-c. 21. Harefield, 1905; *P.H.C.*; two stations, 1952; *D.H.K.* Pinner Hill, one plant, 1920; *L.J.T.* Gravel pit, Bedfont, 1945; *A.W.W.*

PULICARIA Gaertn.

P. DYSENTERICA (L.) Bernh., INULA DYSENTERICA L. *Common Fleabane*. Marshes, wet meadows, ditches, and damp places. Common in all the v.-cc.

P. VULGARIS Gaertn., INULA PULICARIA L. *Small Fleabane*. Moist sandy places, pond-margins, etc., where water stands in the winter. Rare and sporadic. V.-c. 17. West End Common, Esher, in plenty, 1928, *J.E.L.*; *Hb.L.* The pond has become almost dry in summer and overgrown and the plant has not been seen there for some years; *J.E.L.* V.-c. 21. Halliford Green, 1905 and 1908; *J.E.C.*

IVA L.

I. MICROCEPHALA Nutt. Alien. N. America. V.-c. 21. Field border, Harefield, 1950; *M.S.** det. *D.H.K.*

AMBROSIA L.

A. ARTEMISIIFOLIA L. Alien. N. America. V.-c. 16. Garden weed, Abbey Wood, 1914, *J.E.Gr.*; *Hb.B.* det. *Kew.* V.-c. 17. Near Egham, 1920; *L.B.H.* V.-c. 21. Forecourt of Soya Foods Ltd., Springwell, 1945-48; rubbish-tip, Hanwell, 1946, *D.H.K.*; *Hb.K.* Finchley, 1900; Muswell Hill, 1902; *J.E.C.* Rubbish-tip, Greenford, 1946; *D.H.K.* Waste ground, Church Hill, Harefield, 1947; *N.Y.S.* & *D.H.K.*

A. TRIFIDA L. Alien. N. America. V.-c. 17. Addlestone, 1901; *J.E.C.* V.-c. 21. Highgate, 1897; Hackney Marshes, 1912; *J.E.C.* Forecourt of Soya Foods Ltd., Springwell, and nearby canal bank, 1945-48, *D.H.K.*; *Hb.K.*; chalk down on opposite side of canal to Soya Foods Ltd., Springwell, one plant, five feet high, 1947; *J.E.L.* The var. INTEGRIFOLIA (Willd.) Torr. & Gray also occurred in v.-c. 21. Springwell; *D.H.K.*

A. APTERA DC. Alien. N. America. V.-c. 18. Dagenham Dock; *P.H.C.* det. *Kew.*

XANTHIUM L.

X. STRUMARIUM L. *Cocklebur*. Alien. America? V.-c. 16. Erith Marshes, six plants, 1952; *H.T.C.†* V.-c. 18. Rubbish-tip, East Ham, 1951, *J.E.L.* & *J.C.C.*; *Hb.L.* V.-c. 21. Acton Green, 1900, *A.L.*; *Hb.Mus.Brit.*

*Sayle, Miss M.

†Corke, H. T.

X. SPINOSUM L. *Spiny Cocklebur*. Alien. America. V.-c. 16. Stonehill Green, Hextable, 1948, introduced with "shoddy", *F.B.*, *E.C.W.* & *R.A.B.*; 1949, one plant, *D.McC.*; *Hb.L.*; 1950; *D.McC.* Hayes, 1929, *F.G.S.*; *Hb.L.* V.-c. 21. Yiewsley, 1909, *C.B.G.* Hackney Marshes. 1913, *J.E.C.*; *Hb.Mus.Brit.*

HELIANTHUS L.

H. ANNUUS L. *Common Sunflower*. Alien. N. America. Naturalised on rubbish-tips, waste ground, bombed sites and railway banks. Common. V.-c. 17. Rubbish-tip, Mortlake, 1952; *D.H.K.* V.-c. 18. Dagenham; *D.H.K.* V.-c. 20. Rubbish-tip, Bushey, 1950; *R.A.G.* & *D.H.K.* V.-c. 21. Frequent on rubbish-tips at Hanwell, Greenford, Stonebridge, Northolt, Harefield and Uxbridge; *D.H.K.*

H. TUBEROSUS L. *Jerusalem Artichoke*. Alien. N. America. Escape from cultivation. Naturalised on waste ground, rubbish-tips, and railway banks. Rather common. V.-c. 17. Limpsfield Common, *R.W.R.*: *Lond. Nat.*, 18, 68 (1939). V.-c. 18. Grays, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Railway bank, North Acton, 1944-52; rubbish-tips at Hanwell, Greenford, Northolt, Yiewsley and Harefield; *D.H.K.* V.-c. 24. Near Uxbridge, 1917; *L.J.T.*

H. RIGIDUS (Cass.) Desf., H. SCABERRIMUS Ell. *Perennial Sunflower*. Alien. N. America. Garden escape. Naturalised on waste ground and rubbish-tips. Rather common? V.-c. 16. Waste ground, Bromley, 1918; *L.J.T.* V.-c. 17. Waste ground, Ham, 1952, *H.T.C.* V.-c. 21. Waste ground, Willesden; rubbish-tips, Hanwell and Greenford, 1950-52; *D.H.K.*

H. DECAPETALUS L., H. MULTIFLORUS Hort. Alien. N. America. Garden escape. Naturalised on waste ground, bombed sites and rubbish-tips. Rather common? V.-c. 21. Bombed site, Holborn; rubbish-tips, Hanwell and Greenford, 1950-52; *D.H.K.* Bombed sites between Leather Lane and Hatton Garden, *W.C.*, and near St. Pauls, *E.C.*, *J.W.*; *Hb.Mus.Brit.*

GUIZOTIA Cass.

G. ABYSSINICA (L.f.) Cass. Alien. E. Africa. V.-c. 18. Dagenham Dock, 1927; *J.E.C.* Dagenham Dump, plentiful, 1934, *J.E.L.*; *Hb.L.* V.-c. 21. Yiewsley, 1913 and 1926, *J.E.C.*; *Hb.Mus.Brit.* Rubbish-tip, Hanwell, 1951; *D.H.K.* det. *J.E.L.* Rubbish-tips, Harefield and Hounslow Heath, 1951; *D.McC.*, *J.E.L.* & *D.H.K.* V.-c. 24. Near Iver, 1912 and 1915; *J.E.C.*

COREOPSIS L.

C. GRANDIFLORA Nutt. Alien. N. America. Garden escape. V.-c. 21. Between Laleham and Staines, 1930; *L.J.T.* det. *R.W.R.*

COSMOS Cav.

C. BIPINNATUS Cav. Alien. Central and Tropical America. Garden escape. Naturalised on rubbish-tips and waste ground. Rather common. V.-c. 17. Mitcham Common, 1930; *J.E.L.*; *Hb.L.* V.-c. 21. Bombed sites, West Smithfield, *E.C.*; *J.E.L.* Rubbish-tips, Dawley, Hanwell and Greenford; Hanger Hill, Ealing; railway bank, North Acton, 1946-52; *D.H.K.*

BIDENS L.

B. CERNUA L. *Nodding Bur-Marigold*. Ponds, streamsides and marshes. Rather common. V.-c. 16. Pickhurst Green; Southend, near Bromley; W.W. V.-c. 17. Abrook; W.W. Ham Moor, near Weybridge 1917; *E.B.B.* Itchingwood Common, very local, 1921; *R.W.R.* Mitcham Common, 1937; *J.E.L.*; 1949; *J.B.E.* Richmond Park, 1938; *E.B.Ba.* & *J.B.E.* Epsom Common, 1941, *J.E.L.*; *Hb.L.* Riverside, Molesey, 1944; Pond, Sheen Common, 1945; *B.W.* Barnes Common, 1947; *M.M.W.* V.-c. 18. Stanstead; Shenfield; South Weald; *P.H.C.* Chingford; *E.M.D.* Epping Forest; *C.S.N.* V.-c. 20. Colney Heath, 1912; *C.S.N.* Little Berkhamstead, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Common. V.-c. 24. Iver, 1909; *P.H.C.*

B. TRIPARTITA L. *Tripartite Bur-Marigold*. Ditches, ponds, lake margins and streamsides. Common throughout the area. The var. *INTEGRA* Koch is not rare.

GALINSOGA Ruiz & Pav.

G. PARVIFLORA Cav. *Gallant Soldier, Kew Weed*. Alien. S. America. This species escaped from the Royal Botanic Gardens at Kew about the year 1863, and is now naturalised on cultivated and waste ground, bombed sites, and by waysides. Rather common. V.-c. 16. Garden weed, Abbey Wood, 1917; *J.E.Gr.* Potato field, Bromley, 1920; Westersham, 1937-42; *P.H.C.*; 1952; *H.M.P.* Near Crossness Sewage Works, 1927; *H.J.B.* Swanley Junction, 1929, *J.E.L.*; *Hb.L.*; 1951; *J.D.L.* Hextable, 1950; *D.McC.* V.-c. 17. Frequent, especially on light soils about Kew, Richmond, Ham, etc. V.-c. 18. Monkham's Estate, Woodford, 1907; *C.N.* Garden weed, Barking, 1920; *C.L.W.* West Ham, one plant. *G.L.*; *Essex Nat.*, 25, 177 (1937). Near Albert Dock, 1934; *P.H.C.* Dagenham, 1939, *P.H.C.*; *Hb.L.N.H.S.* Stratford Broadway, 1952; *B.T.W.* Loughton, 1952; *R.M.P.* V.-c. 20. Grounds of John Innes Horticultural Institution, Hertingfordbury, 1951; *D.H.K.* V.-c. 21. Common, especially in Central London.

G. CILIATA (Rafn.) Blake, *G. QUADRIRADIATA* auct. Alien. S. America. Naturalised on waste ground and bombed sites. Rather common. V.-c. 17. Tulse Hill, 1943; *J.E.W.*; Claygate, 1943; *W.R.S.*; *Hb.S.L.B.I.*; 1944, in great quantity in cultivated fields, *J.E.L.*; *Hb.L.* Kew, 1945; *L.G.P.* Alderstead Heath near Chaldon, 1952; *H.Br.** V.-c. 21. Common in Central London. Abundant on allotments between Twickenham and Hanworth, 1951; *D.P.Y.* Shadwell, 1951; *J.E.L.* & *J.C.C.* Willesden; Chiswick, 1948; *D.H.K.* Well Walk, Hampstead, 1948; *H.C.H.* Exhibition Road, S.W.7., 1952; *E.B.Ba.* For accounts of this interesting introduction see J. P. M. Brenan, *B.E.C. 1938 Rep.*, 93-94 (1939) and J. E. Lousley, *Lond. Nat.*, 24, 11 (1945), and *Watsonia*, 1, 238-41 (1950).

*Britten, H.

MADIA Molina.

M. SATIVA Molina. Alien. S. America. V.-c. 17. Mortlake, 1921; *J.E.C.* In a flax field near Nutfield, 1943, *E.J.B.*; *Lond. Nat.*, 24, 10 (1945).

HEMIZONIA DC.

H. PUNGENS (Hook. & Arn.) Torr. & Gray. Alien. California. V.-c. 17. Mortlake, 1922; *J.E.C.* V.-c. 21. On mud dredged from river Lea between Hertford and Ware, 1920, *A.W.G.*; *Hb.L.* Hackney Marshes, 1921; *J.E.C.*

ACHILLEA L.

A. MILLEFOLIUM L. Yarrow, *Milfoil*. Meadows, pastures, grassy waste land, railway banks and waysides. Frequent throughout the area. Plants with mauve and purple flowers occasionally occur, but plants with yellowish flowers are rare.

A. NOBILIS L. Alien. Europe. V.-c. 21. Yiewsley, 1910, *J.E.C.*; *Hb.Mus.Brit.*

A. PECTINATA Willd, non Lam. Alien. E. Europe. V.-c. 20. Roadside, Edgware-bury, *W.Ma.** ex *W.H.G.*; *B.E.C. 1912 Rep.*, 164 (1913).

A. PTARMICA L. *Sneezewort*. Damp meadows, marshes, and stream-sides. Common in all the v.cc.

A. FILIPENDULINA Lam. Alien. Orient. Garden escape. V.-c. 21. Abundant and well naturalised on waste ground, Scotch Common, Ealing, 1934-37, since destroyed by building; *K.E.B.*

A. TOMENTOSA L. Alien. Europe. Naturalised in a gravel pit. Not common. V.-c. 16. Old gravel pit near Gravesend, abundant, 1910; *J.E.C.*

ANTHEMIS L.

A. TINCTORIA L. *Yellow Chamomile*. Alien. Europe. Naturalised on waste ground, railway banks, bombed sites, and by waysides. Not common. V.-c. 16. Waste ground, Crayford, 1933; *P.H.C.* V.-c. 20. Rickmansworth, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Finchley, 1910; Yiewsley, 1910-14; West Drayton, 1914-17; *J.E.C.* Golders Green, 1910; Edgware, 1936, *P.H.C.*; *Hb.L.N.H.S.* Chiswick, 1942; *N.Y.S.*; *B.W.*; *J.E.L.*; *Hb.L.* Bombed site, St. Olave's, Silver Street, E.C.; *J.W.L.S.* & *D.McC.* Railway bank between Colnbrook and West Drayton, several large patches, 1951; *D.H.K.*

A. NOBILIS L. *Chamomile*. Sandy commons and pastures and grassy roadsides. Locally plentiful. V.-c. 16. Dartford Heath, 1919; *E.B.B.* V.-c. 17. Wandsworth Common, 1871, *F.J.H.*; *Hb. Mus. Brit.* West End Common, Esher, 1928, *J.E.L.*; Mitcham Common, 1923, *D.G.C.*; *Hb.L.*; 1937; *J.B.E.* Limsfield Chart, local, 1924; *R.W.R.* Kew Gardens; *P.H.C.*; 1952; *D.H.K.* Littleworth Common, 1918; *L.J.T.* Ham Common, 1933; *C.A.* V.-c. 18. Brentwood; Snaresbrook Heath; Woodford Golf Links; *R.W.R.* Old garden lawn, Leytonstone, *G.L.*; *Essex Nat.*, 24, 244 (1933). V.-c. 19. Cobbins End, 1910, *P.H.C.*;

*Magenis, W.

Hb.L.N.H.S. V.-c. 20. Arkley Green, 1912; *P.H.C.* Totteridge, 1918; *J.E.C.* V.-c. 21. Mimms Wash, 1922; Hadley, 1918-22; *J.E.C.*; by Hadley Wood, 1929, *J.E.L.*; *Hb.L.* Bushy Park, 1944; *B.W.*; Hampton Court; Hanworth; Uxbridge Common, 1939-52; *D.H.K.* The var. *DISCOIDALIS* J. W. H. Harrison is reported from v.-c. 17. Kew Gardens; *N.Y.S.*

A. ARVENSIS L. *Corn Chamomile*. Cultivated and waste ground, and rubbish-tips. Not common. V.-c. 16. Chislehurst; *W.W.* Field beyond Darenth Wood and Lane End, 1948; *H.M.P.* V.-c. 17. Field near Addington, 1883, *F.J.H.*; *Hb.Mus.Brit.* Cornfield, Thirty Acre Barn, Ashted, 1929, *E.C.W.*; *Hb.L.*; c. 1932; *J.E.L.* Headley, 1936, *A.E.E.*; *Hb.E.C.M.* V.-c. 18. Ongar; *P.H.C.* Dagenham Dock, 1927; *J.E.C.* V.-c. 20. Bayford, 1937; *R.W.R.* V.-c. 21. Muswell Hill, 1904; Finchley, 1907 and 1910; Yiewsley, 1910, 1912 and 1916; Hackney Marshes, 1912, 1914 and 1919; Alperton, 1917; Greenford, 1917; *J.E.C.* Rubbish-tip, Hanwell, 1950; *B.W.* Between Staines and Laleham, 1951; *D.H.K.* V.-c. 24. Rowley Farm, near Iver, 1931; *J.C.R.*

A. COTULA L. *Stinking Mayweed*. Cultivated and waste ground. Common throughout the area.

A. ALTISSIMA L., *A. COTA* L. Alien. Europe. V.-c. 21. East Finchley, 1907, Yiewsley, 1910; *J.E.C.*

A. MIXTA L. Alien. S. Europe. V.-c. 18. Dagenham Dock, 1927; *J.E.C.* V.-c. 21. Hackney Marshes, 1916, *J.E.C.* & *G.C.B.**; *Hb.Mus.Brit.* V.-c. 24. Near Iver, 1917; *J.E.C.*

CHRYSANTHEMUM L.

C. SEGETUM L. *Corn Marigold*. Cultivated and waste ground, and rubbish-tips. Not common, and often casual. V.-c. 17. Weybridge, 1899; *L.B.H.* Near Thorpe, 1917; *E.B.B.* Oxted; Tandridge, 1917; *R.W.R.*; 1937; *J.B.E.* Wimbledon Common, casual, 1928; *C.A.* Near Chessington, 1944, abundant, *J.E.L.*; *Hb.L.* Field N. of Betchworth railway station, 1950; *B.W.* V.-c. 20. Broxbourne, 1899, *F.E.M.*; *Hb.L.N.H.S.* Wormley; *C.N.* V.-c. 21. Near Golders Green, 1908; Yiewsley, 1910-19; Hackney Marshes, 1919-20; *J.E.C.* Mill Hill, 1909, *C.S.N.*; *Hb.L.N.H.S.* Harrow Weald Common, 1902; *C.B.G.* Rubbish-tip, Greenford, 1945; *B.W.* Laleham; rubbish-tip, Hanwell, 1946; *D.H.K.* Harefield; *C.B.G.* Near Hanger Hill, Ealing, 1949; *L.M.P.S.*

C. LEUCANTHEMUM L. *Marguerite, Moon-Daisy, Ox-eye Daisy*. Meadows, railway banks and grassy waste places. Common throughout the area.

C. MAXIMUM Ramond. *Garden Marguerite, Shasta Daisy*. Alien. Europe. Garden escape. Naturalised in grassy waste places. Not common. V.-c. 17. Waste ground, Mitcham, 1928, *J.E.L.*; *Hb.L.* V.-c.

*Brown, G. C.

21. Canal side, Hanwell, 1950-52; D.H.K. Bombed site, St. Bartholmew's Close, E.C., 1950, *J.W.*; *Hb.Mus.Brit.*

C. ULIGINOSUM (Willd.) Pers. Alien. E. Europe. V.-c. 21. Stanmore, *A.L.*; *B.E.C. 1912 Rep.*, 165 (1913).

C. PARTHENIUM (L.) Bernh. *Feverfew*. Grassy waste places, railway banks, hedgerows and Walls. Common in all the v.-cc. The var. *FLOSCULOSUM* DC. is reported from v.-c. 21. Hackney Marshes, 1924; *J.E.C.*

C. CORONARIUM L. Alien. Mediterranean region. V.-c. 21. Waste ground, Uxbridge, 1903, *A.B.J.*; *Hb.S.L.B.I.*

MATRICARIA L.

M. MARITIMA L. ssp. *INODORA* (L.) Clapham, *M. INODORA* L. *Scentless Mayweed*. Cultivated and waste ground, rubbish-tips and waysides. Common throughout the area.

M. RECUTITA L., *M. CHAMOMILLA* L. p.p. *Wild Chamomile*. Cultivated and waste ground, rubbish-tips and waysides. Common in all the v.-cc.

M. MATRICARIOIDES (Less.) Porter, *M. DISCOIDEA* DC., *M. SUAVEOLENS* (Pursh) Buch., non L. *Rayless Mayweed*, *Pineapple Weed*. Alien. N. America. Naturalised on waste ground, waysides, paths, tracks and bare places. Abundant throughout the area.

COTULA L.

C. CORONOPIFOLIA L. Alien. S. Africa. V.-c. 21. Hackney Marshes; Muswell Hill, 1913; *J.E.C.*

TANACETUM L.

T. VULGARE L. *Tansy*. Roadsides, hedgebanks, waste ground and streamsides. Common in all the v.-cc., especially near the Thames, with the exception of 19, where it has not so far been recorded.

ARTEMISIA L.

A. ABSINTHIUM L. *Wormwood*, *Absinthe*. Waste ground and rubbish-tips. Locally abundant. V.-c. 16. Hayes, 1939, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 17. Wimbledon Common, 1934; *C.A.* Kingston Vale, two places, 1944; *B.W.* V.-c. 18. Dagenham, 1909, *P.H.C.*; *Hb.L.N.H.S.*; 1934, *J.E.L.*; *Hb.L.* Purfleet, 1936; *P.H.C.* West Ham, locally abundant, *G.L.*; *Essex Nat.*, 25, 177 (1937), Redbridge, Ilford, 1951, *B.T.W.* Creekmouth, Barking, 1951; *J.C.C. & J.E.L.* V.-c. 19. Roadside, Epping Lower Forest, 1936, *P.H.C.*; *Hb.L.N.H.S.* Aimes Green, 1952; *B.T.W.* V.-c. 20. Amwellbury 1908, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Church End, Finchley, 1917; *J.E.C.* Bombed Sites, Cripple-gate; *F.E.W.* Bombed site, Chelsea, 1943, *W.J.L.S.*; *Hb.L.*—see also *Lond. Nat.*, 24, 9 (1945). Hampton Court Park, 1940, *P.H.C.*;

Hb.L.N.H.S.; 1946, *J.E.L.*; *Hb.L.* Roadsides and waste ground near Chiswick Bridge, plentiful; rubbish-tip, Northolt, abundant; Windmill Lane, Hanwell; Stamford Hill, 1944-52; *D.H.K.* Between Greenford and Yeading, 1947; *B.W.* Near Kingsbury Church, 1952; *R.A.G.* Bombed site, Shadwell, 1952, *A.H.*; *Hb.Mus.Brit.* V.-c. 24. Near Yiewsley, 1949; *D.H.K.* The plant which is so frequent on waste ground, etc., in various places north of the Thames is not the same as the one so long known under the same name in places on the coast and deserves further study.

A. VULGARIS L. *Mugwort*. Waste ground, bombed sites and waysides. Abundant in all the v.-cc.

A. MARITIMA L. *Sea Wormwood*. Salt-marshes, banks of the tidal Thames and sea walls. Local. V.-c. 16. Swanscombe Marshes, 1919, *P.H.C.*; *Hb.L.N.H.S.*; 1945; Stone Marshes, 1945; Crayford Ness, 1949; *F.R.* Dartford Marsh, 1933; *P.H.C.* Thames marshes up to Swanscombe, 1950; *H.M.P.* V.-c. 18. Grays, 1908, *P.H.C.*; *Hb.L.N.H.S.* West Thurrock Marshes, 1918; *L.J.T.*

A. DRACUNCULUS L. Alien. E. Europe. Garden escape. V.-c. 20. Rubbish-tip. Bushey, 1950; *R.A.G.*

A. ANNUA L. Alien. Orient. V.-c. 21. Yiewsley, 1923; *J.E.C.*; 1927, *R.M.*; *Hb.L.*

A. PIENNIS L. Alien. N. America. V.-c. 17. Gravel pit, Mitcham Junction, 1941, *J.E.L.*; *Hb.L.* V.-c. 21. Hackney Marshes, 1913; Church End, Finchley, 1919; *J.E.C.* Rubbish-tip. Greenford, 1945, *B.W.*; *Hb.K.*

A. LUDOVICIANA Nutt. Alien. N. America. V.-c. 21. Canal bank near Springwell, 1946, *L.G.P.*; *Hb.K.*

A. VERLATORUM Lamotte. Alien. China. Naturalised on waste ground, railway banks, rubbish-tips and streamsides. Rather common, especially near the Thames. V.-c. 17. Between Kew and Chiswick Bridge, 1945, *J.E.L.*; *Hb.L.*; at intervals along the Tow-path and extending away from the river; *J.E.L.* Ham; 1945; *N.Y.S.*; 1948, *J.E.L.*; *Hb.L.* Wimbledon, 1947; *J.E.L.* Cheam, 1947; *E.C.W.* Walton-on-Thames, abundant on waste ground by the river, 1949; Wimbledon and Barnes Commons, 1950; *R.A.B.* V.-c. 18. Dagenham, 1950; *N.Y.S.* V.-c. 20. Near Elstree; *D.H.K.* V.-c. 21. Hounslow, 1908, *C.B.G.*; *Hb.D.* det. *J.P.M.B.* Brentford; Chiswick, 1944; *B.W.* East Finchley, 1947; *J.E.L.* Thames bank, Chertsey Bridge, abundant; between Sunbury and Halliford; near East Bedfont; Hounslow Heath; canal bank near Norwood Green; Cool Oak Lane, Kingsbury; Hayes; Willesden; Fulwell Golf Course, abundant; Hanworth; Hayes; Ealing; Acton, 1945-53; *D.H.K.* Rubbish-tip, Hanwell, 1946-53; *B.W.* & *D.H.K.* Hampton Court Terrace; near Sunbury; railway bank between St. Margaret's and Twickenham, 1947; gravel pits near Feltham, 1952; *B.W.* Railway bank, Willesden Junction, 1949; *R.A.B.*; 1952; *D.H.K.* Bombed site, Fetter Lane, E.C., 1950, *J.W.*; *Hb.Mus.Brit.* For an account of this interesting species see J. P. M. Brenan, *Watsonia*, 1, 209-23 (1950).

TUSSILAGO L.

T. FARFARA L. *Coltsfoot*. Railway banks, cultivated and waste ground, especially on heavy soil. Very common throughout the area.

PETASITES Mill.

P. HYBRIDUS (L.) Gaertn., Mey. & Sherb., *P. OVATUS* Hill, *P. OFFICINALIS* Moench, *P. VULGARIS* Desf. *Butterbur*. Stream and pondsides. Locally abundant. V.-c. 16. By river Darent near Darenth, 1914; *E.B.B.*; 1948-52; *H.M.P.* V.-c. 17. Common by river near Oxted Mill, 1914; stream at Limsfield; *E.B.B.*; 1924; *L.J.T.* Thames bank, East Molesey, 1922; Thames-side between Kew and Richmond, 1918; *L.J.T.*; 1948; *E.B.Ba.* Thames bank between Kew and Mortlake, 1945; *B.W.* By river Mole below Box Hill, 1926, *E.C.W.*; *Hb.L.* By river Wandle, Mitcham, 1943; *P.H.C.* V.-c. 18. By river Lea, Waltham; *C.N.*; 1952; *R.M.P.* V.-c. 19. By river Lea, Nazeing Mead, abundant, 1920; *L.J.T.* V.-c. 20. Cheshunt, 1911; Watford and Sandy Lodge, abundant, 1913. *P.H.C.*; *Hb.L.N.H.S.* Cassio' Bridge; *C.S.N.* Park Street; *P.H.C.* Broxbourne; *L.B.H.* By river Ver near Frogmore, 1921; London Colney, 1938; Hertford, 1942; *L.J.T.* Rickmansworth; *D.H.K.* V.-c. 21. Frequent by river Colne and Grand Union Canal from Springwell to Uxbridge Moor. Stanmore Common; *H.W.Pa.* & *D.H.K.* Hampton Court; *B.W.* Brookside, Scratch Wood, 1950; *D.H.K.* Thames bank near Chiswick Bridge; *R.A.B.*; 1952; *D.H.K.* V.-c. 24. By river Colne near Denham; *D.H.K.* The male plant is the common one in the area, but the female plant, which is very local in Britain generally, is plentiful in the Colne valley.

P. FRAGRANS (Vill.) C. Presl. *Winter Heliotrope*. Alien. S. Europe. Garden escape. Naturalised on banks, by stream and roadsides, and in waste places. Not common. V.-c. 16. Roadside near Pickhurst Mead. Hayes, 1918; *L.J.T.* Corkscrew Hill, West Wickham, 1924, *J.E.L.*; *Hb.L.*; 1938; *D.McC.* V.-c. 17. Mickleham, 1916; *E.B.B.*; abundant on banks of main road, 1931, *P.H.C.*; *Hb.L.N.H.S.* Caterham, 1934-35; *L.J.T.*; Petersham Common, 1943-53, still increasing; roadside near Wray Common, Reigate, 1953; *B.W.* V.-c. 18. Between Tawney Hall and Theydon, 1929; Epping, 1938-44; Chigwell Row, 1945; Theydon Bois, 1952; *L.J.T.* V.-c. 20. Rickmansworth, 1922 and 1947; Hatfield, 1921 and 1926; Bayford, 1934; Carpenders Park, 1942; *L.J.T.* Totteridge, 1926; *J.E.C.* V.-c. 21. Muswell Hill; *J.E.C.* Highgate, 1905, *C.S.N.*; *Hb.L.N.H.S.* Pinner, 1926; abundant on railway bank near Clapton railway station, 1928; Harrow; Eastcote, 1942; Swakeleys, 1952; *L.J.T.* Hampton Water Works, 1948; *P.F.Y.* Near Ashford County Hospital; *J.K.H.* Stanmore Common; between Poyle and Colnbrook; Thames bank opposite Richmond; Finchley, 1939-52; *D.H.K.* Near Uxbridge, 1939; waste ground, Willesden, 1946, *D.H.K.*; *Hb.K.*

P. JAPONICUS (Sieb. & Zucc.) F. Schmidt. Alien. Sakhalin. Garden escape. Naturalised on a bank. Rare. V.-c. 20. Plentiful on a bank in the grounds of Aldenham House, 1952, *C.S.S.** comm. *T.G.C.*; *Hb.K.*

DORONICUM L.

D. PARDALIANCHES L. *Great Leopard's-bane*. Alien. Europe. Garden escape. Naturalised on hedgebanks and in grassy places. Rare. V.-c. 17. Limpsfield Common, established for many years, 1932; *R.W.R.*; 1939, *P.H.C.*; *Hb.L.N.H.S.* Between Epsom and Chessington, 1933; *P.H.C.* Near Marden Castle, Woldingham, a large patch under a beech tree, 1953; *B.W.* V.-c. 21. Hedgebank near Hounslow Heath, several plants, 1945, *D.H.K.*; *Hb.K.*

SENECIO L.

S. AQUATICUS L. *Marsh Ragwort*. Marshes, stream and riversides, ditches and wet meadows. Common in all the v.-cc. with the exception of 19 where it is so far unrecorded. The var. *DISCOIDEUS* Druce is reported from v.-c. 17. Thames bank, Barnes, 1922; *J.E.C.* V.-c. 21. Canal bank, Greenford Green; *D.H.K.*

S. JACOBÆA L. *Common Ragwort*. Meadows, railway banks, waste ground and roadsides. Common throughout the area. The var. *DISCOIDEUS* L. is recorded from v.-c. 21. Gravel pit near Hounslow Heath, 1950; *H.B. & D.H.K.*

S. ERUCIFOLIUS L. *Hoary Ragwort*. Railway banks, roadsides, field borders and grassy waste places, especially on calcareous and heavy soils. Common in all the v.-cc.

S. SQUALIDUS L. *Oxford Ragwort*. Alien. S. Europe. Naturalised on bombed-sites, railway embankments, waste ground, roadsides, gravel and chalkpits and old walls. This native of Sicily and southern Italy was first reported in Britain from walls at Oxford in 1794 (Sibthorp, *Fl. Oxon.*, viii), presumably as an escape from the Botanic Gardens, where it had been cultivated since before 1690. In 1799 J. E. Smith reported it as 'plentiful on almost every wall in Oxford' (*English Botany*, 9, t. 600), and in the years that followed many other authors reported its continued abundance there. It was not, however, until about 1879 that the plant began to extend its range from its original station, and it was then by the agency of the Great Western Railway, the parachute-like fruits being carried in the vortex of air following express trains. In this way it reached Reading in Berks., where it became established before 1896, and before 1900 it had arrived at Maidenhead in Berks. and Slough in Bucks.

The plant entered the London area at the turn of the century, and in 1904 was reported from the vicinity of the railway at Uxbridge and West Drayton (*J. Benbow*; *Hb.Mus.Brit.*), Southall (*G. C. Druce*;

*Smallcombe, C. S.

B.E.C. 1904 Rep., 25 (1905) and Acton (*A. Loydell; Hb.D.*), these localities, all in v.-c. 21, constitute the earliest known authentic records of the species as an established* alien in the area. During the same year it was discovered growing on a partly made road between Tadworth and Epsom in v.-c. 17 (*C. E. Britton; Hb.Kew*). Here however, it is unlikely that the plant had spread via the railway, it being more probable that it had been introduced with road-making ballast transported from an area where the species was already established. In the years preceding the first World War, the Oxford Ragwort was reported from v.-c. 21, Hayes (1909, *P. H. Cooke; Hb.L.N.H.S.*), Yiewsley (1913; *J. E. Cooper*) and the White City Exhibition grounds (1914, *A. B. Jackson; Hb.Kew*), all the localities being on or near the Great Western Railway. By 1912 it had spread to rubbish-tips at Hackney Marshes in v.-c. 21 (*J. E. Cooper*), and in 1913 was found in similar situations at Grays in v.-c. 18 (*P. H. Cooke; Hb.L.N.H.S.*), in these two latter stations it had possibly been introduced with rubbish from the vicinity of the western suburbs. In the same year its continued existence was reported from Tadworth, v.-c. 17 (*C. E. Salmon; Hb.Mus.Brit.*).

In 1916 *S. squalidus* was found growing by the railway near Grove Park in v.-c. 16 (*G. C. Druce; B.E.C. 1916 Rep.*, 491 (1917)) and near Iver in v.-c. 24 (*J. E. Cooper*). A new Middlesex station—Greenford—was added in 1917 (*J. E. Cooper*), and in 1918 it was discovered growing on railway sidings at Reigate in v.-c. 17 (*C. E. Salmon*). During 1919 it was collected from near the Thames at Chiswick, v.-c. 21 (*T. A. Sprague; Hb.Kew*) and Grove Park, v.-c. 21 (*C. E. Hubbard; Hb.Kew*). 1922 provided a new Surrey locality—railway banks at Wandsworth Common (*R. Lang; Hb.Kew*). In 1923 it was located at Hayes Common in v.-c. 16 (*B. T. Lowne; Hb.B.*), North Sheen, v.-c. 17 (*J. Fraser; Hb.Kew*) and Lower Morden, v.-c. 17 (*C. E. Britton; Hb.Kew*), and Finchley, v.-c. 21 (*E. Drabble; Hb.Mus.Brit.*), while during 1924 it was gathered at Barnes, v.-c. 17 (*C. E. Britton; Hb.S.L.B.I.*). In 1925 the plant was found at Biggin Hill and West Wickham (*Hb.Mus.Brit.*) and Abbey Wood, all v.-c. 16 (*St. J. Marriott; B.E.C. 1925 Rep.*, 879 (1926)).

In 1926, the Oxford Ragwort was recorded from waste ground at Barkings in v.-c. 18 (*G. Lister*), and was also gathered near Reigate Heath, v.-c. 17 (*E. C. Wallace; Hb.L.*) and Banstead, v.-c. 17 (*J. E. Lousley; Hb.L.*). During 1927 the plant was discovered at Watford in v.-c. 20 (*J. E. Cooper*), and was also gathered at Woodcote Park, Epsom, v.-c. 17 (*E. C. Wallace*) and Dagenham, v.-c. 18 (*J. E. Cooper*). By 1928 it was established along the Thames bank between Kew and Mortlake in v.-c. 17 (*A. R. Horwood; Hb.Kew*), and in 1930 was found at Greenhithe, v.-c. 16 (*R. W. Robbins*), Mitcham Common, v.-c. 17 (*J. E. Lousley; Hb.L.*) and along the Great West Road at Osterley in v.-c. 21 (*F. Ballard & V. S. Summerhayes; Hb.Kew*). In 1931 the plant was seen at Dartford, v.-c. 16 (*P. H. Cooke*), Wimbledon Common, v.-c. 17 (*H. W. Pugsley; Hb.Mus.Brit.*), between Richmond and Kingston, v.-c. 17 (*P. H.*

*The plant was discovered as a casual adventive at Twickenham, v.-c. 21. in 1867—see *Fl. Middx.*, 160 (1869).

Cooke) and in a sand-pit near Colnbrook, v.-c. 24 (*C. E. Longfield*). During 1933 it was found between Chislehurst and Orpington, v.-c. 16 (*P. H. Cooke*) and at Mill Hill, v.-c. 21 (*P. H. Cooke*). In 1935 it was observed on railway banks at Ewell East, v.-c. 17 (*E. C. Wallace*) and at Kingsbury, v.-c. 21 (*P. H. Cooke*), and in the following year it was reported as established about the railway at Swanley Junction, v.-c. 16 (*P. H. Cooke*) and between Edgware and Stanmore, v.-c. 21 (*P. H. Cooke*). 1937 produced the first truly metropolitan record when the plant was noticed growing on the slope of the moat at the Tower of London, v.-c. 21 (*P. H. Cooke*); it was also seen at Erith, v.-c. 16 (*P. H. Cooke*).

Until about 1930 the Oxford Ragwort was still not common, except in the immediate vicinity of railways, and in a few other scattered localities. In the last twenty years it has increased at a prodigious rate, and by the outbreak of the recent war it was already abundant by railways and roads and on waste ground in many of the suburbs. The construction of air-raid shelters in 1939 and 1940 afforded an opportunity for the plant to invade central London, while the bare spaces resulting from the subsequent bombing afforded ideal conditions for the rapid increase of the species.

The present known distribution in the London area is as follows:—
 V.-c. 16. Abundant on bombed sites and waste ground and by railways in the metropolitan area; generally plentiful by the railway from London to Rochester; frequent in chalkpits, on waste ground and by roadsides about Dartford, Greenhithe and Stone. V.-c. 17. Plentiful in the metropolitan districts; common about Epsom, Reigate and Banstead—less common in the south-west. V.-c. 18. Frequent in the metropolitan districts; common by the railway from Stratford to Snaresbrook, but apparently absent or scarce from Woodford to Epping. Plentiful by the railway from London to Benfleet. V.-c. 19. Apparently not common, and recorded only from North Weald railway station, 1952; *B.T.W. & J.E.L.*, though well known in several places outside the area. V.-c. 20. Apparently not common, though known from Elstree, Watford, Rickmansworth and Hertford. V.-c. 21. Generally common, though less abundant in the south-west parts of the county. V.-c. 24. Generally common.

× *VISCOSUS* = *S. × LONDINENSIS* Lousley. V.-c. 16. Railway siding, St. Mary Cray, 1944, *J.E.L.*; *Hb.L.* V.-c. 17. Bombed site, Baldry Gardens, Streatham, 1944; Ham gravel pits, 1944; Mortlake, 1948, *J.E.L.*; *Hb.L.* By Pendell Court, Bletchingly, 1951, *B.M.C.M.*; *Hb.Mus.Brit.* teste *J.E.L.* V.-c. 18. Rubbish-tip, East Ham, 1952, *B.W.*; *Hb.Mus.Brit.* V.-c. 21. Bombed sites, Sergeants Inn, E.C., Bush Lane, Suffolk Lane, The Temple, E.C., etc., 1944, *J.E.L.*; *Hb.L.* Chelsea, 1946; *R.A.G.* Bombed site, Ravenscourt Park, W.6, 1946; *N.Y.S.* Bombed site, Piccadilly, W.1., 1947; *S.B.* Stamford Hill; Hackney; Uxbridge, 1947; *D.H.K.* Car park, Marsham Street, S.W.1., 1948; *S.E.C.* Pithead Mews, W.1., 1947, *A.H.G.A.*; *Hb.Mus.Brit.* Grounds of Natural History Museum, S.W.7, 1949; *E.B.Ba.* Bombed site, Bute Street, S.W.7, 1949; *J.B.E.* For a description and account of

this interesting hybrid see J. E. Lousley, *B.E.C. 1943-44 Rep.*, 869-874 (1946).

× VULGARIS = S. × BAXTERI Druce. V.-c. 18. Walthamstow, c. 1947; *M.A.R.S.S.* det. *J.E.L.* & *D.H.K.* V.-c. 21. Rubbish-tip, Hounslow Heath, 1948, *B.W.*; *Hb.K.* Sergeants Inn, E.C.; *N.Y.S.*

S. viscosus L. *Viscous Groundsel, Stinking Groundsel.* Waste ground, bombed sites, railway tracks and banks. Probably introduced. Common in all the v.-cc. except 19 where so far it is unrecorded.

S. sylvaticus L. *Heath Groundsel.* Heaths, commons and grassy places on sandy soils. Common in all the v.-cc. The var. *AURICULATUS* Meyer is reported from v.-c. 17. Headley Heath, 1928, *E.C.W.*; *Hb.L.*

S. vulgaris L. *Groundsel.* Cultivated and waste ground. Abundant throughout the area. The var. *RADIATUS* Koch is recorded from v.-c. 17. By Hampton Court railway station, 1944, *J.E.L.*; *Hb.L.* Garden, Kingston, 1950; *B.W.* V.-c. 21. River-wall, Hampton Court, 1947, *B.W.* & *D.H.K.*; *Hb.K.* Bombed site near Wood Street, E.C., *W.J.L.S.* & *D.McC.* det. *J.E.L.* Regents Park, 1947; *A.H.G.A.* East Heath, Hampstead, 1949; *D.H.K.*

S. tanguticus Maxim. Alien. China. Naturalised by a roadside. Rare. V.-c. 17. Foot of wall of Epsom College, Longdown Lane South, 1945, *A.E.E.*; *Hb.E.C.M.* Appears annually; *A.E.E.*

CALENDULA L.

C. officinalis L. *Marigold.* Alien. S. Europe. Garden escape. V.-c. 16. Downe, 1933; Erith Marshes; Westerham, 1937; *P.H.C.* V.-c. 17. Railway bank near Selsdon Road railway station, 1916; *L.J.T.* Wimbledon, 1930; *R.W.R.* Rubbish-tip, Beddington Lane, 1937; Merstham; *P.H.C.* Tamworth Lane, Mitcham, 1930, *J.E.L.*; *Hb.L.* Epsom Sewage Farm, 1938; *A.E.E.* V.-c. 18. Grays, 1913, *P.H.C.*; *Hb.L.N.H.S.* Albert Docks; *P.H.C.* V.-c. 20. Rubbish-tip, Bushey, 1950; *R.A.G.* & *D.H.K.* V.-c. 21. By Southern Railway line near Grosvenor Bridge, 1924; *L.J.T.* Hillingdon; *P.H.C.* Frequent on rubbish-tips; *D.H.K.* V.-c. 24. Iver, 1942; *L.J.T.*

C. arvensis L. Alien. S. Europe. V.-c. 21. Hackney Marshes, 1915, *J.E.C.*; *Hb.Mus.Brit.*

ECHINOPS L.

E. sphaerocephalus L. Alien. Europe. V.-c. 17. Bomb-crater, Brockham Hill, 1948; *J.E.L.*; 1949, also on nearby down, *J.E.L.*; *Hb.L.*

E. ritro L. Alien. Europe. V.-c. 17. Epsom Sewage Farm, *A.E.E.*; *B.E.C. 1938 Rep.*, 45 (1939).

CARLINA L.

C. vulgaris L. *Carline Thistle.* Dry grassy places, almost confined to the chalk. Locally plentiful. V.-c. 16. Common on calcareous soils. V.-c. 17. Frequent on the chalk. V.-c. 18. Between Purfleet and Grays, 1920; *L.J.T.* V.-c. 19. Nazeing Common, 1920; *L.J.T.* V.-c.

20. Near Bayford, 1937, *P.H.C.*; *Hb.L.N.H.S.* Radlett, 1942; *J.B.* V.-c. 21. Apparently absent from the chalk. Finchley Common, 1905; *C.S.N.* Gravel pits, Northwood, 1905; *C.B.G.* Warren Gate, 1910, *P.H.C.*; *Hb.L.N.H.S.*

ARCTIUM L.

A. LAPPA L. *Great Burdock*. Waste places, waysides and wood borders. Locally common. V.-c. 16. Near Crossness Sewage Works, 1927; *H.J.B.* Green Street Green, near Farnborough, 1930, *J.E.L.*; *Hb.L.* Certainly more widespread than these records suggest. V.-c. 17. Near Hurst Green, Oxted, local, 1922; near Barrow Green, Oxted, 1925; *R.W.R.* By river Mole near Norbury Park, 1934; Headley Lane, 1936; *P.H.C.* South Hawke, Woldingham, 1929, *J.E.L.*; *Hb.L.* Bookham Common, 1950; *C.P.C.* & *D.H.K.* V.-c. 19. Roydon, 1936; *P.H.C.* V.-c. 20. Woods near Broxbournebury, 1924; *E.B.B.* V.-c. 21. Edgware, 1912; Cowley, 1915; Yiewsley, 1919; Greenford, 1920; *J.E.C.* Hendon, 1913, *P.H.C.*; *Hb.L.N.H.S.*; 1918; *J.E.C.* Between Ruislip and Harefield, 1928; *B.T.W.* Harefield; Springwell; Ruislip; Harrow; Hanwell; Perivale; Horsenden Hill; Cranford; Shepperton, 1939-52; *D.H.K.* V.-c. 24. Denham; Black Park; *D.H.K.*

A. VULGARE (Hill) A. H. Evans, *A. NEMOROSUM* Lej. & Court., p.p. *Wood Burdock*. Waste places, waysides, open woods and thickets. Rare, or overlooked. V.-c. 17. Damp wood, Pain's Hill, Limpsfield, *R.W.R.*; *Lond. Nat.*, 16, 11 (1937). V.-c. 21. Harefield; Uxbridge; Ickenham; Ruislip; near Hounslow Heath, abundant, 1946-52; *D.H.K.*

A. PUBENS Bab. In similar habitats to the previous species. Rare, or overlooked. V.-c. 17. Mickleham, 1952, *A.M.* & *E.B.Ba.*; *Hb.Mus. Brit.*

A. MINUS (Hill) Bernh. *Lesser Burdock*. Waste places, waysides and woods. Common throughout the area.

A. TOMENTOSUM L. Alien. Europe. V.-c. 21. Yiewsley, 1916 and 1919; *J.E.C.*

CARDUUS L.

C. NUTANS L. *Musk or Nodding Thistle*. Pastures, waysides, cultivated and waste ground, particularly on calcareous soils, also near the Thames. Locally common. V.-c. 16. Leaves Green to West Wickham Church, 1917; Dartford, 1936; *P.H.C.* Greenhithe, 1939, *P.H.C.*; *Hb.L.N.H.S.* Darenth Wood; Dartford Heath, 1948-52; *H.M.P.* V.-c. 17. Buckland Hills, 1917; *E.B.B.* Epsom Downs, 1930; Banstead, 1943; *P.H.C.* Limpsfield, local; *R.W.R.* Rough fields N. of Mickleham Downs; near Roaring Horse Farm, Fetcham, abundant, 1951; *J.E.S.D.* Thames-side meadow, Ham, 1943 *et seq.*; *B.W.* V.-c. 18. West Thurrock, 1909; Epping railway station yard, 1931; *P.H.C.* V.-c. 20. Croyley Green; *C.S.N.* Towpath at Cheshunt, 1901; *C.N.* Rye House, 1910, *P.H.C.*; *Hb.L.N.H.S.* By river Lea near Broxbourne; *P.H.C.* Near

Rickmansworth, 1912; *L.J.T.* V.-c. 21. East Bedfont; Harmondsworth; *P.H.C.* Hornsey, casual, 1894; *C.S.N.* Yiewsley; Finchley; Harefield; *J.E.C.*; Hampton Court; Chertsey Bridge; Bedfont; Stanwell; Hounslow Heath; Twickenham; Uxbridge Moor, abundant and very fine; Staines Moor; near Shepperton, 1939-52; *D.H.K.* Halliford Green, 1945; Chiswick, 1944; *B.W.* V.-c. 24. Fulmer; Denham; *P.H.C.* The var. *MACROCEPHALUS* (Desf.) Gugler, a native of S.E. Europe, is reported from v.-c. 17. Railway bank, West Weybridge, 1945, *J.A.W.*; *Hb.L.* det. *W.A.S.*

C. CRISPUS L. *Wetted Thistle*. Damp grassy places, streamsides, hedgerows, waste places and rubbish-tips. Common. V.-c. 16. Frequent. V.-c. 17. Common. V.-c. 18. Aveley; Navestock; Lambourne; *P.H.C.* V.-c. 19. Nazeing, 1913; *P.H.C.* V.-c. 20. Frequent. V.-c. 21. Common. V.-c. 24. Near Horton; *C.S.N.* Denham; *D.H.K.*

C. PYCNOCEPHALUS L. Alien. S. Europe, N. Africa and W. Asia. V.-c. 18. Grays, 1910, *P.H.C.*; *Hb.L.N.H.S.* Dagenham Dock, 1927; *J.E.C.* V.-c. 21. Yiewsley, 1913-23; Temple Fortune, 1914; Church End and North Finchley, 1923; *J.E.C.*

C. TENUIFLORUS Curt. *Slender Thistle*. Waysides and waste places, especially near the tidal Thames. Locally plentiful. V.-c. 16. Common on river-walls, Dartford to Gravesend (and beyond); *J.E.L.* V.-c. 17. Banstead Downs, 1926, *J.E.L.*; *Hb.L.*; 1946, a second locality, a good half mile from the former station; *L.N.H.S. Excursion*. V.-c. 18. Abundant by the tidal Thames from near Grays to Tilbury, 1952; *B.T.W.*

CIRSIUM Mill.

C. ERIOPHORUM (L.) Scop. ssp. *BRITANNICUM* Petrak. *Woolly Thistle*. Grassy places, open scrub and roadsides. Very rare. V.-c. 17. Old Coulsdon, a few plants among bushes on a chalky bank where it is unlikely to have been introduced, 1951; *H.Br.* teste *C.T.P.*; 1952, *J.E.L.*; *Hb.L.* V.-c. 21. Crouch End, 1896, *J.E.C.*; *Hb.Mus.Brit.*

C. VULGARE (Savi) Ten., *CARDUUS LANCEOLATUS* L., *CIRSIUM LANCEOLATUM* Scop., non Hill. *Spear Thistle*. Fields, waysides, cultivated and waste ground. Frequent throughout the area. White-flowered plants are reported from v.-c. 18. Abridge, 1914; *J.E.C.*, and specimens with flesh-coloured blossoms were found at v.-c. 21. Hayes; Hackney Marshes, 1916; *J.E.C.*

C. ACAULON (L.) Scop. *Stemless Thistle*. Closely grazed pastures, downs and commons. Locally abundant, especially on the chalk and London Clay. V.-cc. 16-17. Frequent on the chalk and common on the London Clay. V.-c. 18. Grays, 1909, *P.H.C.*; *Hb.L.N.H.S.* Hainault, 1913; *P.H.C.* V.-c. 20. Cassiobury Park; Croxley Green; *C.S.N.* Colney Heath, 1912, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. Harefield; *R.W.R.*; 1952; Springwell, 1944-52; *D.H.K.* Laleham; *P.H.C.* Ruislip Common, 1947; *F.E.W.* & *D.H.K.*; 1948-52; *D.H.K.* By Chertsey Bridge, 1947; *B.W.* The forma *CAULESCENS* Rehb. is reported from

v.-c 16. Chislehurst; W.W. V.-c. 17. Headley Lane, Mickleham, 1925; E.B.B. Mitcham Common, 1941, J.E.L.; Hb.L. teste W.A.S.

C. DISSECTUM (L.) Hill, CARDUUS DISSECTUS L., C. PRATENSIS Huds., C. ANGLICUS Lam. *Marsh Plume Thistle*. Marshes and bogs, on wet peat. Local. V.-c. 16. Keston, 1921; W.W. V.-c. 17. Oxshott Heath; W.W. Epsom Common, 1903, L.B.H.; Hb.H.; 1938; P.H.C. Byfleet, 1902; J.E.C. Great Bookham Common, 1925; E.B.B.; 1951; E.B.Ba. Mitcham Common, 1930, J.E.L.; Hb.L.; 1932; L.P.; 1938; J.B.E. Itchingwood Common, 1925; R.W.R. Farm Bog, Wimbledon Common, 1925, J.E.L.; Hb.L.; 1935; C.A.; 1947; D.H.K.

C. ARVENSE (L.) Scop. *Creeping Thistle*. Cultivated and waste ground and waysides. Abundant throughout the area. An extremely variable species needing further study. The following varieties have been recorded though many of them probably need revision. var. MITE Wimm. & Grab. V.-c. 16. Crofton, by Chislehurst; W.W. V.-c. 17. Near Headley, 1919; E.B.B. Bughill Farm, Warlingham, 1933, J.E.L.; Hb.L. V.-c. 21. Syon Park; Hanwell; Uxbridge; D.H.K. Hampton Court, 1928; L.J.T. Ickenham, 1952; F.E.W. det. A.M. ssp. SETOSUM (Willd.). V.-c. 16. Chislehurst; near Orpington; W.W. Lock's Bottom, 1917; near Bromley, 1920; P.H.C. Near Reigate, 1941, E.J.B.; Hb.L. V.-c. 21. East Bedfont, 1905; P.H.C. Pinner, 1915; L.J.T. Hampstead Heath, 1902; J.E.Wh. Finchley, 1902, Muswell Hill, 1903; Whetstone, 1906; Yiewsley, 1912; J.E.C. ssp. SETOSUM (Willd.) var. COMPLICATUM (Schweigg). V.-c. 17. Hallelu Farm, Warlingham, 1925, J.E.L. Hb.L. teste W.A.S. Var. OBTUSILOBIUM Beck. V.-c. 17. West Barnes, Merton, 1932, C.E.B.; Hb.L.

C. PALUSTRE (L.) Scop. *Marsh Thistle*. Marshes, wet places, damp meadows, hedgebanks and woods. Frequent throughout the area. White-flowered plants are common.

ONOPORDUM L.

O. ACANTHIUM L. *Scotch Thistle, Cotton Thistle*. Alien. Europe. Naturalised on waste ground, and in grassy places and by waysides. Not common. V.-c. 16. Between Dartford and Littlebrook, 1930; R.W.R.; in some quantity, 1931; P.H.C. Hayes Place, 1936-37, since destroyed by building; D.McC. Lane End, near Darenth, 1946; F.R.; 1948-51; Stone Marshes; Sutton-at-Hone Village, 1948-51; Stone Lodge Farm, Stone, on spoil from chalkpit, 1952; H.M.P. V.-c. 17. Oxted, three or four plants, 1930; R.W.R. V.-c. 18. Purfleet; Stanstead, 1913; P.H.C. V.-c. 20. Bricket Wood, 1912, P.H.C.; Hb.L.N.H.S. Rickmansworth railway station, 1915; L.J.T.; 1925; J.E.C. V.-c. 21. Finchley, 1910; Muswell Hill, 1911; J.E.C. Bombed site near The Minories, E.C., 1947, R.W.; Hb.W. Greenford, 1944; D.H.K. V.-c. 24. Denham, 1923; L.J.T.

CYNARA L.

C. CARDUNCULUS L., C. SCOLYMUS L. Alien. Europe. V.-c. 21. Hackney Marshes, 1944; D.H.K.

SILYBUM Adans.

S. MARIANUM (L.) Gaertn. *Milk-Thistle*. Alien. Europe. Naturalised in waste places and by waysides. Not common, and usually only casual except by the Thames estuary. V.-c. 16. Northfleet, 1919 and 1938; Dartford Marsh, 1931; *P.H.C.* Hayes; West Wickham, 1934-35; *D.McC.* Gore Hill and Green Street Green near Dartford, 1946; *F.R.* V.-c. 17. Wimbledon Common, casual, 1928; *C.A.* Streatham Common, one plant, 1935; *P.H.C.* Mizen's Market Garden, Ewell, 1945, *A.E.E.*; *Hb.E.C.M.* Chipstead, two small plants, 1952; *L.N.H.S. Excursion*. V.-c. 18. Purfleet, 1910, *P.H.C.*; *Hb.L.N.H.S.* West Thurrock, 1925; Dagenham Dock, 1927; *J.E.C.* Near Tilbury Docks, 1938, *J.E.L.*; *Hb.L.* V.-c. 20. Great Amwell, 1909, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 21. East Finchley, 1907-10; Yiewsley, 1908-09 and 1913-16; Hackney Marshes, 1915; Alperton, 1917; Hendon, 1925; *J.E.C.* Garden ground, Highgate, casual, 1917; *C.S.N.*; *Hb.L.N.H.S.* West Drayton, 1920; by canal, Harefield, 1930; *P.H.C.* Waste ground, Kenton, a fine colony, 1949; *K.E.B.* Rubbish-tip, Hanwell, 1949; *D.H.K.* V.-c. 24. Near Uxbridge, 1912-13; near Iver, 1913-15; *J.E.C.*

SERRATULA L.

S. TINCTORIA L. *Saw-wort*. Wood margins, clearings, thickets, heaths and railway banks. Local. V.-c. 17. Croydon, 1899, *L.B.H.*; *Hb.H.* Epsom Common, 1935; *P.H.C.*; 1936; *R.W.R.*; 1941, *J.E.L.*; *Hb.L.* Mitcham Common, 1929, *J.E.L.*; *Hb.L.* Banstead, 1942; *J.B.* Bookham Common, 1942, *P.H.C.*; *Hb.L.N.H.S.* Wimbledon and Ham Commons, 1943; *B.W.* V.-c. 20. Aldenham Reservoir, 1929, *J.E.L.*; *Hb.L.* Near Totteridge, 1946; *J.E.L. & D.H.K.* V.-c. 21. Potters Bar, 1910, *P.H.C.*; Bishops Wood, Finchley, sparingly, 1902, *C.S.N.*; *Hb.L.N.H.S.* Church End, Finchley, 1917; South Mimms, 1918; near Mill Hill, 1915; *J.E.C.*; 1946; Hounslow Heath; railway banks between Hounslow and Feltham, 1939-52; *D.H.K.* Copse Wood, Northwood, 1945; *B.W.* Brookside Walk, Hendon, 1942; *J.B.* White-flowered plants are reported from v.-c. 21. South Mimms, 1918; *J.E.C.*

CENTAUREA L.

C. JACEA L. *Brown-rayed Knapweed*. Alien. Europe. Naturalised in grassy places. Rare. V.-c. 17. Malden, 1927, *C.E.B.*; *Hb.L.*—see *B.E.C. 1927 Rep.*, 575 (1928). The ssp. *JUNGENS* Gugl. is reported from v.-c. 17. Malden, 1929, *C.E.B.*; *Hb.L.*—see *B.E.C. 1929 Rep.*, 230 (1930) and the var. *FIMBRIA-SQUAMA* Gugl. was gathered in v.-c. 17. Woldingham, *C.E.B.*; *B.E.C. 1925 Rep.*, 1052 (1926) and 1929, *C.E.B.*; *Hb.L.*—see *B.E.C. 1927 Rep.*, 575 (1928). Malden, 1929, *C.E.B.*; *Hb.L.*—see *B.E.C. 1929 Rep.*, 230 (1930). The ssp. *ANGUSTIFOLIA* Gugl. is reported from v.-c. 17. Malden, 1927, *C.E.B.*; *Hb.L.*—see *B.E.C. 1927 Rep.*, 576 (1928).

×NIGRA. V.-c. 17. West Byfleet Golf Links, 1932, *J.E.L.*; *Hb.L.* A hybrid swarm. Just outside the area, but it seems that here and at Malden, Woldingham, etc., these hybrid swarms were the basis of the complications introduced into British literature by C. E. Britton. The "varieties" of *C. JACEA* given above, *C. PRATENSIS* and some of Britton's segregates of *C. NIGRA* are apparently hybrids and backcrosses of *C. JACEA* and *C. NIGRA*. *C. PRATENSIS* was identified by C. E. Britton from v.-c. 17. By Hallelu Farm, Warlingham, 1925, *J.E.L.*; *Hb.L.*—See *Watson B.E.C. 1926-27 Rep.*, 385 (1927). For an account of these hybrid swarms see W. B. Turrill, *British Plant Life*, 221 (1948).

C. NIGRA L. (Including ssp. *NIGRA* and ssp. *NEMORALIS* (Jord.) Gugl.). *Lesser Knapweed*, *Hardheads*. Grassy places and waysides. The aggregate species is common throughout the area. Ssp. *NEMORALIS* appears to be the common plant, while ssp. *NIGRA* seems scarcer in the south of England, though apparently the common form in the north. C. E. Britton attempted to distinguish various segregates of this species. Some of these are now regarded as hybrids, others appear to be of little importance

C. CYANUS L. *Cornflower*; *Bluebottle*. Cornfields, waste places and rubbish-tips. Formerly common but now rare owing to modern grain cleaning methods. Sometimes only casual. V.-c. 16. Near Dartford, 1930 and 1938; *P.H.C.* Downe, 1935; Green Street Green, 1936, *P.H.C.*; *Hb.L.N.H.S.* Chelsfield, scattered over a large field, 1938, *D.McC.*; *Lond. Nat.*, 18, 32 (1939). Rubbish-tip, Sevenoaks, 1951; *D.McC.* V.-c. 17. Wimbledon Common, casual, 1926; *C.A.* Epsom, 1931, *I.B.B.*; *Hb.E.C.M.* Walton Heath, 1942; *J.H.G.P.* Cornfield, Pebblecombe Hill, 1950; *B.M.C.M.* V.-c. 18. Chingford, 1902; *J.O.B.* Grays, 1913, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Aldenham; *P.H.C.* Rye House, 1910, *P.H.C.*; *Hb.L.N.H.S.* Sandpit, Broxbourne; *C.N.* London Colney, 1941; *J.B.* V.-c. 21. Harefield, 1902, *R.W.R.*; *Hb.L.N.H.S.*; 1938; *D.H.K.* Clapton, 1884, *F.J.H.*; *Hb.Mus.Brit.* Crouch End, 1894; *C.S.N.* East Finchley; Finchley; Yiewsley, 1908-10; Hackney Marshes, 1912; West Drayton, 1917; *J.E.C.* Greenford, 1938; Staines, 1946; railway bank, Northwood, 1948; *D.H.K.* V.-c. 24. Denham, 1935; *P.H.C.*

C. SCABIOSA L. *Greater Knapweed*. Dry grassy places, banks and roadsides. Locally abundant on the chalk, rather uncommon elsewhere. V.-c. 16. Common on calcareous soils. Littlebrook Marshes, 1930; *R.W.R.* V.-c. 17. Frequent on the chalk. Wimbledon Common; *C.A.* By river Thames between Kew and Richmond, 1920; *L.J.T.*; 1932; *P.H.C.* Near Norwood, 1927; *R.W.R.* Barnes Common, 1943-45; river-side between Richmond and Kingston, 1943 *et seq.*; by Richmond railway station, 1944-45, now gone; *B.W.* V.-c. 18. Hainault; Corbet Tey; *P.H.C.* Thurrocks, 1909; Purfleet, 1935, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Croxley Mills; *C.S.N.* Essendon; by river Lea, Broxbourne; *P.H.C.*

Rickmansworth, 1941; *J.B.* V.-c. 21. Common on the chalk at Harefield and Springwell. Northwood, 1928; *B.T.W.* South Mimms; *P.H.C.* Finchley, 1907; Yiewsley, 1917-20; *J.E.C.* Between Sunbury and Walton Bridge, 1945; *B.W.* Between East Bedfont and Feltham; Hounslow; by canal between Hanwell and Southall; Stonebridge; Hampton Court; railway bank, North Acton, 1939-52; *D.H.K.* V.-c. 24. Denham, 1941; *J.B.* White-flowered plants are reported from v.-c. 16. Stone Marshes, 1948; *H.M.P.* V.-c. 17. Merstham; *J.E.C.* V.-c. 21. Near Harefield, 1917; *J.E.C.*

C. CALCITRAPA L. *Star Thistle*. Waysides, and waste places. Very rare, and often only casual. V.-c. 16. Northfleet, 1900; *J.E.C.*; 1949; *F.R. & L.N.H.S. Excursion*. V.-c. 17. Tow-path by Kew Gardens, 1950, a single plant; *J.Ru.*; *B.W.* V.-c. 21. Fortis Green, 1911; *J.E.C.* Bombed site near Victoria railway station, 1951; discovered independently by *D.McC. & J.C.C.*; *J.E.L.*

C. ASPERA L. *Rough Star Thistle*. Alien. Europe. V.-c. 16. Road verge, Kidbrooke Park Road, S.E.3, 1952, *K.L.L.**; *Hb.Mus.Brit.* det. *A.M. & E.B.Ba.*; *B.W.*; *J.E.L.*

C. SOLSTITIALIS L. *St. Barnaby's Thistle*. Alien. S. Europe and W. Asia. Cultivated land, especially in lucerne and sainfoin fields. Seldom persisting for more than a year. V.-c. 16. Wickham Farm, in quantity, 1936, but lost in 1937, *D.McC.*; *Lond. Nat.*, 18, 31 (1939). Near Hartley Church, Longfield, 1949; *W.I.B.‡*; *D.McC.*; *Hb.L.*—see also *Lond. Nat.*, 29, 9 (1950). V.-c. 17. Wallington, among lucerne, 1933, *J.E.L.*; *Hb.L.* Addington, 1950; *C.T.P.* V.-c. 18. Waste ground near Rainham, 1927, *R.B.*; *Hb.L.* Dagenham Dock, 1939, *P.H.C.*; *Hb.L.N.H.S.* V.-c. 20. Ware, 1920, *A.W.G.*; *Hb.L.* Hailey, 1952; *L.J.J.* V.-c. 21. Harefield; Yiewsley, 1912, *J.E.C.*; *Hb.Mus.Brit.* The var. *ADAMII* (Willd.) is reported from v.-c. 24. Near Iver, 1912; *J.E.C.*

C. MONTANA L. Alien. Europe. V.-c. 17. Box Hill, near house, 1935, *E.P.†*; *Hb.E.C.M.*

C. DIFFUSA Lam. Alien. S. Europe. V.-c. 24. Near Uxbridge, 1912; *J.E.C.*

C. MELITENSIS L. *Maltese Star Thistle*. Alien. Mediterranean region. V.-c. 16. Gravel pit near Hayes railway station, 1926, *F.G.S.*; *Hb.L.* V.-c. 20. Ware, 1922, *A.W.G.*; *Hb.L.* V.-c. 21. Yiewsley, 1912; Hackney Marshes, 1912-13; *J.E.C.* Rubbish-tip, Hanwell, 1951, *T.G.C.*, *M.C. & D.H.K.*; *Hb.K.*

C. PALLESCENS Del. Alien. Egypt. V.-c. 21. Fortis Green, 1911; *J.E.C.*

*Law, Mrs. K. L.

‡Bennett, Mrs W. I.

†Pringle, E.

C. MOSCHATA L. *Sweet Sultan*. Alien. Orient. Garden escape. V.-c. 16. Old chalkpit, Green Street Green near Farnborough, 1937, *J.E.L.*; *Hb.L.* V.-c. 21. Rubbish-tip, Hanwell, 1946, *N.Y.S.* & *D.H.K.*; *Hb.K.* det. *N.Y.S.* Rubbish-tip, Greenford, 1951; *T.G.C.* & *D.H.K.*

CARTHAMUS L.

C. LANATUS L. Alien. Europe. V.-c. 16. Hextable, 1948, *D.McC.*; *Hb.L.* Introduced with "shoddy".

C. TINCTORIUS L. Alien. N. Africa. V.-c. 16. Green Street Green, near Farnborough, 1937, *J.E.L.*; *Hb.L.* V.-c. 21. East Finchley, 1906; Yiewsley, 1926, *J.E.C.*; *Hb.Mus.Brit.*

CICHORIUM L.

C. INTYBUS L. *Chicory*, *Wild Succory*. Roadsides, pastures, waste ground and railway banks. Locally abundant, especially on the chalk. V.-c. 16. Common on the chalk. Dartford Marshes, 1931; *P.H.C.* V.-c. 17. Frequent on the chalk. The Hythe, near Egham, 1917; *E.B.B.* Chertsey Meads, 1924; *W.B.* Ham gravel pits, 1932; *P.H.C.*; 1944; *B.W.* V.-c. 18. Chingford, 1905; *J.O.B.* Purfleet, 1911; *P.H.C.* Bromley-by-Bow Gasworks, 1938; *R.P.D.* teste *R.S.R.F.* Walthamstow Reservoir, 1951; *J.B.* V.-c. 19. Cobbin's End; *P.H.C.* V.-c. 20. Great Anwell, 1909; West Hyde; Wormley; *P.H.C.* Batchworth Heath; *R.W.R.* V.-c. 21. Hackney Marshes; *J.E.G.*; 1909; Muswell Hill, 1912; Yiewsley, 1912; near Colnbrook, 1910; Northolt, 1916; Hayes, 1916; Greenford, 1917; *J.E.C.* Cowley, Potters Bar; *P.H.C.*; seen in both places, 1946; *D.H.K.* By river Thames between Staines and Laleham; *C.S.N.*; 1952; *D.H.K.* Near Harefield, 1909; *C.S.N.*; 1952; *D.H.K.* Brickfield, Clapton; Tottenham, 1909; *P.H.C.* Near Kingston Bridge, 1942; *B.W.* East Bedfont; Hanwell; railway banks between Hanwell and Southall, common; Wealdstone; Uxbridge; Charlton; Yeoveney; Poyle; West Drayton; Southall; Perivale; Northolt, 1939-52; *D.H.K.* Bombed-site near Fore Street, E.C., 1951; *J.B.* Bombed-site, Shadwell, 1952, *A.H.*; *Hb.Mus.Brit.* V.-c. 24. Near Wraysbury; *C.S.N.*; 1920; Horton, 1921; Iver, 1942; *L.J.T.* Plants with white flowers are reported from v.-c. 16. Swanley, 1916; *J.E.C.*

[ARNOSERIS Gaertn.

A. MINIMA (L.) Schweigg & Koerte, *A. PUSILLA* Gaertn. *Lamb's or Swine's Succory*. This species occurs over a sandy area around Byfleet, etc., a little outside our area, and although not so far recorded within the radius by members it should be searched for in the old localities round Hersham.]

LAPSANA L.

L. COMMUNIS L. *Nipplewort*. Waysides, hedges, wood margins, walls and waste places and as a garden weed. Frequent throughout the area. The forma *HIRSUTA* Peterm. was found in v.-c. 21. Near Greenford, 1951; *T.G.C.* det. *D.H.K.*; 1952; *T.G.C.* & *D.H.K.*

PRESENTED

24 JUN 1953



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THE Society is an amalgamation of the City of London Entomological and Natural History Society, founded in 1858, and the North London Natural History Society, founded in 1892.

Meetings are held on Tuesday evenings, either at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C.1, or at the Linnean Society's rooms, Burlington House, Piccadilly, W.1. The half-yearly Programme should be consulted as to the venue of any particular meeting. The room is open from 6 p.m. to 9 p.m., and meetings begin punctually at 6.30 p.m. and end about 8.30 p.m., unless other arrangements are announced. The Library and Collections are available to members after meetings at the School of Hygiene.

At all indoor meetings specimens of Natural History interest are exhibited, and papers on various subjects are read and discussed. Visitors may be introduced by members of the Society, and are cordially welcome. Frequent field meetings are held at week-ends, particulars of which are contained in the Programme.

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Further information and Programme may be obtained from the General Secretary:—**H. A. TOOMBS**, Dept. of Geology, British Museum (Natural History), Cromwell Road, S.W.7.



